

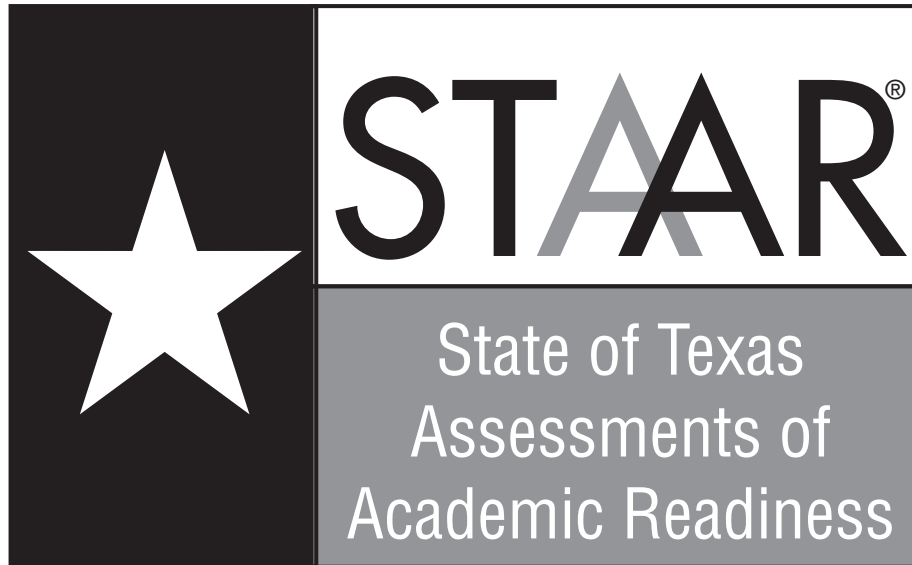
Texas STAAR 2022 Grade 4 Reading

Exam Materials

Pages 2 - 32

Answer Key Materials

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GRADE 4

Reading

Administered May 2022

RELEASED

Read the selection and choose the best answer to each question.
Then fill in the answer on your answer document.

Digging Up the Truth

Characters

NELSON: 4th-grade student

MATT: Nelson's friend

LUCIA: Nelson's friend

MS. CHEN: Librarian

MR. LUND: Nelson's father

SCENE 1

- 1 *[Late summer afternoon, outside the public library. Nelson and Matt wait for the bus.]*
- 2 **NELSON:** What do you think of Writing Camp so far?
- 3 **MATT:** It's pretty cool. What did you write about today?
- 4 **NELSON:** A guy who's an astronaut. I had space travel on my mind from this great book I'm reading. . . . *[Digs in his backpack to pull out his book.]* Hold on. . . . *[Digs some more.]* Hey, I think I left my book inside. I'll be right back.
- 5 **MATT:** Hurry—the bus will be here soon.
- 6 *[Nelson runs back into the library. Ms. Chen looks up when she hears the door.]*
- 7 **NELSON:** Sorry to bother you, but I think I left something in here.
- 8 **MS. CHEN:** Feel free to look around, Nelson. What are you missing?
- 9 **NELSON:** It's a book called *Space Ride*. *[Searches the area where he sat earlier.]* Have you seen it?
- 10 **MS. CHEN:** No, but I'll help you look.
- 11 *[Ms. Chen and Nelson search for a few minutes but don't find the book.]*
- 12 **MS. CHEN:** Let's look again tomorrow morning. Maybe it will turn up.

13 **NELSON:** [*Disappointed.*] I hope so. Thanks, Ms. Chen.

14 [*Nelson hurries out to the bus stop.*]

SCENE 2

15 [*The next morning. Matt and Nelson are walking into the library before camp.*]

16 **MATT:** Did you ever find your book?

17 **NELSON:** [*Sighs.*] No. And I was just getting to the good part.

18 **MATT:** What's it called?

19 **NELSON:** *Space Ride*. Will you help me look?

20 **MATT:** Sure.

21 [*The boys check all around but find nothing. They are walking to their seats, but Matt abruptly stops.*]

22 **MATT:** Hey, Nelson, look at that. [*Nods his head toward Lucia, who is reading Space Ride at the next table.*]

23 **NELSON:** [*Irritated.*] Let's go talk to her.

24 [*The two boys walk over to Lucia.*]

25 **NELSON:** Hi, Lucia. Where'd you get that book?

26 **LUCIA:** [*Looking up.*] At the bookstore. Why?

27 **NELSON:** I lost my copy yesterday. Are you sure you didn't find it here?

28 **LUCIA:** [*Shakes her head.*] No, this one's mine.

29 [*Nelson looks at Lucia suspiciously.*]

30 **LUCIA:** [*Closing the book and holding it to her chest.*] You're not the only person who likes this book, Nelson. Besides, I'm on page 134. If I had just found the book, I couldn't have read this many pages already.

31 [*Ms. Chen overhears the students talking and walks over to them.*]

32 **MS. CHEN:** Nelson, there's no reason to assume that Lucia has your book.

- 33 **NELSON:** But Ms. Chen, I lost this same book yesterday, and today Lucia is reading it. Don't you think that's strange?
- 34 **MS. CHEN:** No, and we should trust Lucia. This book is very popular. The library even has a waiting list for it. You can keep looking for your book after camp. Now please have a seat so we can start writing.
- 35 [*Nelson and Matt slowly walk back to their table. Nelson looks distressed.*]

SCENE 3

- 36 [*Later that evening. Nelson and Mr. Lund are sitting on the couch in their living room.*]
- 37 **NELSON:** [*Forcefully.*] Dad, I just know Lucia has my book.
- 38 **MR. LUND:** Lucia said that was her copy, Nelson. Are you sure you've looked everywhere?
- 39 **NELSON:** I've searched the library a hundred times.
- 40 **MR. LUND:** How about your room? And in your backpack?
- 41 **NELSON:** [*Shaking his head.*] It's not in there, Dad.
- 42 **MR. LUND:** Why don't you look in your bag one more time? I'll hunt around here.
- 43 [*Nelson opens his backpack and takes out all his belongings, one by one. He turns the backpack upside down and shakes it. A book falls out.*]
- 44 **NELSON:** [*Shocked.*] Dad, the book was in my bag the whole time. Look, here. [*Shows Mr. Lund the inside of his backpack.*] The inside pocket is torn, and it must've slipped down into the lining of the bag. [*Sticks his hand in the backpack. Smiles. Then looks concerned.*] Poor Lucia was telling the truth all along. And Ms. Chen. She tried to help me.
- 45 **MR. LUND:** Well, tomorrow is a new day.
- 46 **NELSON:** You're right. I'll show the backpack to Lucia and Ms. Chen when I get to the library in the morning. I hope they'll understand and accept my apology.
- 47 **MR. LUND:** [*Nodding his head.*] That's a good plan.

48 **NELSON:** But now I have another plan.

49 [Nelson *smiles and makes himself comfortable on the couch and opens up* Space Ride.]

- 1 Read line 25.

NELSON: Hi, Lucia. Where'd you get that book?

What is the most likely reason Nelson asks Lucia this question?

- A** To learn where he can buy the same book
 - B** To find out if she picked up his book in the library
 - C** To get suggestions from her about where to look for his book
 - D** To see if there is another copy of the book in the library
-

- 2 What does the word assume mean in line 32?

- F** Suggest a different solution
 - G** Realize something is missing
 - H** Wonder about a problem
 - J** Believe something without proof
-

- 3 Which line from the play best supports the idea that Nelson realizes he made a mistake?

- A NELSON:** Are you sure you didn't find it here? (line 27)
- B NELSON:** Don't you think that's strange? (line 33)
- C NELSON:** Poor Lucia was telling the truth all along. (line 44)
- D NELSON:** But now I have another plan. (line 48)

- 4** Read line 45.

MR. LUND: Well, tomorrow is a new day.

What does this line suggest?

- F** Nelson can improve the situation with Lucia and Ms. Chen.
 - G** Lucia will notice that Nelson is being nice to her.
 - H** Mr. Lund will help Nelson look for a new backpack.
 - J** Nelson should return to writing camp with Matt.
-

- 5** Why is Mr. Lund important to the resolution of the play?

- A** He listens to Nelson talk about his problem.
- B** He tells Nelson to look through his backpack again.
- C** He looks through the house to find the book.
- D** He offers a way to apologize the next day at camp.

6 Read the dictionary entry.

check \ˈchek\ *verb*

- 1.** to mark
- 2.** to control
- 3.** to search
- 4.** to study

Which definition of check is used in line 21?

- F** Definition 1
 - G** Definition 2
 - H** Definition 3
 - J** Definition 4
-

7 Read this stage direction from line 30.

LUCIA: [*Closing the book and holding it to her chest.*]

What does this stage direction suggest about Lucia?

- A** She wants to be sure to take the book when she leaves.
- B** She wants to read the book before Nelson does.
- C** She is upset that Nelson plans to write about the book.
- D** She realizes that Nelson thinks the book belongs to him.

Read the selection and choose the best answer to each question. Then fill in the answer on your answer document.

Junior Park Rangers

- 1 It's a warm, sunny day at Garner State Park in Texas. A group of children crouch down near a dusty trail. The children are studying a strange set of footprints on the ground. One girl points at the toe markings. Meanwhile, a boy studies an animal-tracking guide. "I think they belong to a turkey!" the boy announces. The other children agree. They make a note in their journals. "We're one step closer to our Junior Ranger badges!" the girl grins. These children are participating in the Texas State Parks Junior Ranger Program. This program offers a fun way for children to discover and explore in Texas state parks.



Children wearing Junior Ranger Explorer Packs stop along a trail to study animal tracks.

Courtesy of Texas Parks and Wildlife

Junior Rangers across Texas

- 2 In May 2013 the Texas State Parks Junior Ranger Program began. Thanks to the program, there are many Junior Rangers across the state of Texas today. This means that many children have learned how to take care of parks. This is good news for Texas state parks because there are nearly 100 parks in the state.
- 3 No matter where you live in Texas, chances are there is a state park close to you. There are park locations among mountains and canyons, in the desert, and along the seashore. Each park is rich with different animals, birds, rocks, flowers, and plants. No two

parks are alike. Each park offers a unique experience for young explorers.

Becoming a Junior Ranger

- 4 It is easy to become a Junior Ranger. The program is completely free and is available to children aged 6 through 12. Children interested in becoming a Junior Ranger need the Junior Ranger Activity Journal. This journal is available at every state park. The journal describes the park and its history. Children can also read about the jobs of park rangers in the journal. It contains safety rules as well as information about how to keep the park beautiful.



Children enjoy a family hike as they use the Junior Ranger Explorer Pack that they borrowed from the park headquarters.

Courtesy of Texas Parks and Wildlife

- 5 In order to become a Junior Ranger, you must complete some of the activities in the journal. The number of activities is determined by your age. For example, if you are 8 to 10 years old, you may work on your choice of seven activities. You may choose to interview a ranger, explore a trail, complete a game, or answer questions about the park. If you are younger, you may complete fewer activities. If you are older, more activities are required to earn your badge.
- 6 No matter your age, when you have finished your activities, a park ranger will review the completed activities in your journal. (You may take the journal home as a souvenir!) Then, you will take the Junior Ranger pledge and promise to care for the park. You will also receive

an official Junior Ranger badge. Each park has a different badge, so you can collect as many as you want!

Helpful Tools for Junior Rangers

- 7 Each time you visit a new Texas state park, visit the park headquarters. It is often located near the park's main entrance. This is where you can pick up a Junior Ranger Activity Journal. Some state parks offer Junior Ranger Explorer Packs. Children may borrow the backpack from the park headquarters.



Courtesy of Texas Parks and Wildlife

- 8 The Junior Ranger Explorer Packs contain helpful items for a young explorer. The backpacks include binoculars, a magnifying glass, an animal-tracking key, a pencil, crayons, watercolors, and a sketchbook. The binoculars are especially useful for viewing animals from a distance. The animal-tracking key shows what different animal tracks look like. The key helps explorers figure out which animals have traveled on a path by looking at their footprints. The backpack also includes guides to birds, flowers, rocks, plants, and trees. The guides help children learn more about what can be seen at the state park.

Spoken Like a Real Junior Ranger

- 9 What's it like to earn a Junior Ranger badge? "It's fun!" says Molly Miser, who earned a badge at Stephen F. Austin Park. Ranger Bryan Hein, who awarded her the badge, agrees. "It's a great opportunity for our young ones to learn the culture and natural resources of our parks," he says.

- 8** What is the central idea of the selection?
- F** The Junior Ranger Program offers a way for children to learn about and explore Texas state parks.
 - G** Children can meet Junior Rangers by visiting Texas state parks.
 - H** Children who live near a Texas state park can become Junior Rangers.
 - J** The Junior Ranger Program activity books give children something to do when they visit Texas state parks.
-

- 9** In which section would the reader find information about having a park ranger review the Junior Ranger Activity Journal after the activities in the journal have been completed?
- A** Junior Rangers across Texas
 - B** Becoming a Junior Ranger
 - C** Helpful Tools for Junior Rangers
 - D** Spoken Like a Real Junior Ranger
-

- 10** Which sentence best states a message in the selection?
- F** Spending time outdoors is a good way to make new friends.
 - G** The most difficult activities are usually the most interesting ones.
 - H** It is important for children to make their own goals.
 - J** Learning about nature can be challenging and rewarding.

11 In paragraphs 4 through 6, what key idea about the Junior Ranger Activity Journal is best supported?

- A** It includes activities students must complete to earn a badge.
 - B** It describes activities students have done to improve the park.
 - C** It teaches students about the different state parks in Texas.
 - D** It gives students a place to write about their experience.
-

12 What is the most likely reason the author includes the anecdote in paragraph 1?

- F** To explain what a child must do to become a Junior Ranger
 - G** To persuade children to use a Junior Ranger Explorer Pack at a park
 - H** To provide details about activities available at Texas state parks
 - J** To introduce the topic by describing a real Junior Ranger experience
-

13 Which sentence best explains why children should visit as many parks as they can?

- A** *This program offers a fun way for children to discover and explore in Texas state parks. (paragraph 1)*
- B** *This is good news for Texas state parks because there are nearly 100 parks in the state. (paragraph 2)*
- C** *Each park offers a unique experience for young explorers. (paragraph 3)*
- D** *This journal is available at every state park. (paragraph 4)*

Read the next two selections and choose the best answer to each question. Then fill in the answer on your answer document.

Do What You Can



- 1 There was once a farmer who had a large field of corn that he harrowed and weeded with the greatest care, for he wanted to sell the corn and buy good things for his family with the money. But after he had worked hard, he saw the corn wither and droop, for no rain fell, and he began to fear that he was to have no crop. He felt very sad, and every morning he went out to the field and looked at the thirsty stalks and wished for the rain to fall.
- 2 One day, as he stood looking up at the sky, two little raindrops saw him, and one said to the other: "Look at that farmer. I feel very sorry for him. He took such pains with his field of corn, and now it is drying up. I wish I might help him."
- 3 "Yes," said the other, "but you are only a little raindrop. What can you do? You can't wet even one hill."
- 4 "Well," said the first, "I know, to be sure, I cannot do much; but perhaps I can cheer the farmer a little, and I am going to do my best by going to the field to show my good will, if I can't do anything more. Here I go!"
- 5 The first raindrop had no sooner started for the field than the second one said:

- 6 “Well, if you really insist upon going, I think I will go, too. Here I come!” And down went the raindrops. One came—pat—on the farmer’s nose, and one fell on a thirsty stalk of corn.
- 7 “Dear me,” said the farmer, “what’s that? A raindrop! Where did it come from? I do believe we shall have a shower.”
- 8 By this time a great many raindrops had come together to see what all the commotion was about, and when they saw the two kind little drops going down to cheer the farmer and water his corn, one said:
- 9 “If you two are going on such a good errand, I’ll go, too!” And down he came. “And I!” said another. “And I!” And so said they all, until a whole shower came and the corn was watered, and then the corn grew and ripened—all because one little raindrop tried to do what it could.

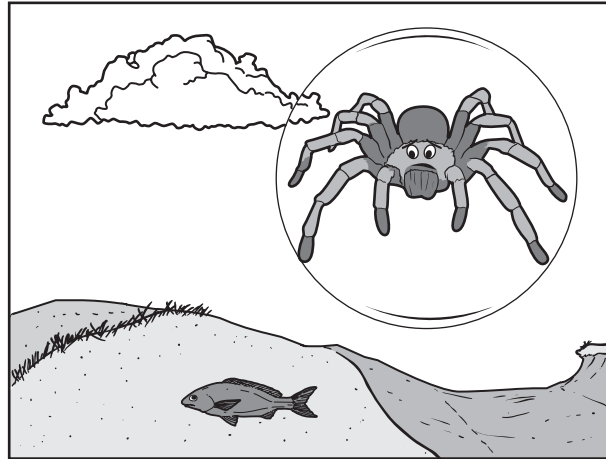
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How Six Sons Rescued Anansi

An Adaptation of an African Folktale

- 1 Many years ago a spider named Anansi had six sons. Each one had a special talent, so Anansi gave each son a name that identified that son’s unique gift. Anansi called his sons: River Drinker, See Far, Stone Thrower, Road Builder, Bubble Blower, and Puffy Pillow.
- 2 One morning Anansi told his sons, “There’s a treasure that glows behind the mountain. I am going to search for it.”
- 3 “Good luck, Father,” the six sons said.
- 4 That evening See Far was peering into the distance from a tall tree. Suddenly he shouted to his brothers, “Father has fallen into a lake, and a fish has swallowed him! He needs our help.”
- 5 Instantly Road Builder built a silky trail that zigzagged like a lightning bolt through the trees. Then, the brothers charged down the path to the lakeshore.
- 6 “But how will we capture the fish?” cried See Far. “It’s hiding beneath the waves.”
- 7 “That’s no problem,” announced River Drinker. He leaned over and gulped down the water. Soon the fish was flapping on the dry, sandy bottom.

- 8 "But how will we get Father out?" asked See Far. "He's trapped inside."



- 9 "Watch me!" declared Bubble Blower. He took a deep breath and blew into the fish. Seconds later a huge bubble floated out with Anansi screaming for help inside it!
- 10 However, before the six sons could catch the bubble, it floated into the sky.
- 11 "Oh, no!" gasped See Far. "Father and the bubble have drifted into that thundercloud."
- 12 "I'll rescue him," proclaimed Stone Thrower. Carefully he aimed a tiny pebble at the thundercloud and then threw the rock into the cloud. *Pop!* Anansi plunged from the sky back toward the earth.
- 13 "Father is falling!" yelled See Far frantically.
- 14 "Oh, no!" said Puffy Pillow. In a flash, he lay beneath Anansi.
- 15 *Plop!* Anansi landed with a gentle bounce on Puffy Pillow's soft, springy back.
- 16 "Thank you, my talented sons," Anansi praised. "I wish I could reward you all with the treasure I discovered, but I only found one glowing white ball. How will I decide which son deserves it most?"
- 17 As Anansi considered his dilemma, he began to smile. Finally, with one tremendous toss, he hurled the ball into the darkening night sky.
- 18 "Look, my sons," Anansi laughed with delight. "I've placed the moon in the sky so you can share the reward."

14 Use “Do What You Can” to answer the following question.

Which sentence from the story “Do What You Can” supports the idea that the first raindrop inspires the other raindrops?

- F** *“I feel very sorry for him.”* (paragraph 2)
 - G** *“I wish I might help him.”* (paragraph 2)
 - H** *“Yes,” said the other, “but you are only a little raindrop.”* (paragraph 3)
 - J** *“Well, if you really insist upon going, I think I will go, too.”* (paragraph 6)
-

15 Use “Do What You Can” to answer the following question.

What does the word wither mean in paragraph 1 of the story “Do What You Can”?

- A** Find warmth
- B** Grow fast
- C** Stay strong
- D** Become dry

16 Use “Do What You Can” to answer the following question.

In the story “Do What You Can,” which key idea about the first raindrop do the details in paragraph 2 support?

- F** The first raindrop understands the farmer’s problem.
 - G** The first raindrop wants to be the farmer’s friend.
 - H** The first raindrop believes the farmer should plant a different crop.
 - J** The first raindrop thinks that hard work has made the farmer ill.
-

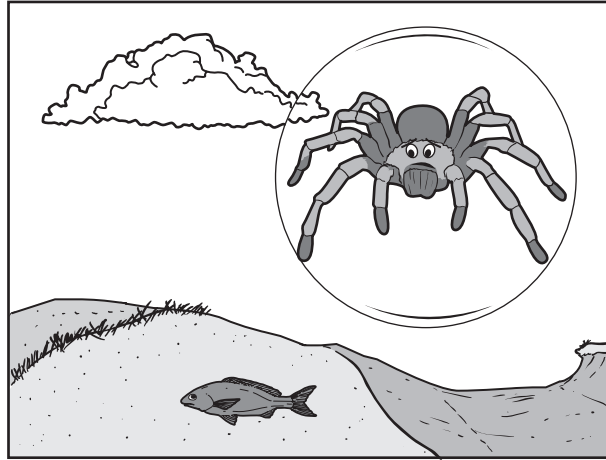
17 Use “How Six Sons Rescued Anansi” to answer the following question.

Based on the events throughout the story “How Six Sons Rescued Anansi,” which sentence best describes how Anansi feels about his sons?

- A** He is bothered by their unusual behaviors.
- B** He is eager to teach them new skills.
- C** He is proud of their accomplishments.
- D** He is upset by their attitudes.

- 18** Use “How Six Sons Rescued Anansi” to answer the following question.

Look at this illustration from the story “How Six Sons Rescued Anansi.”



What is the most likely reason the author includes this illustration?

- F** To highlight that Anansi is about to escape from the bubble
- G** To show that Anansi is floating high in the bubble
- H** To hint that Anansi is worried that the hungry fish may eat him
- J** To suggest that no one can see where Anansi has gone

- 19** Use “How Six Sons Rescued Anansi” to answer the following question.

What is the main message of the story “How Six Sons Rescued Anansi”?

- A** Everyone makes mistakes sometimes.
 - B** Doing your best is more important than succeeding.
 - C** More can be accomplished when working as a team than working alone.
 - D** The world has many wonders that are waiting to be discovered.
-

- 20** Use “How Six Sons Rescued Anansi” to answer the following question.

Which sentence from the story “How Six Sons Rescued Anansi” best helps the reader understand that Anansi’s problem is resolved?

- F** *Seconds later a huge bubble floated out with Anansi screaming for help inside it!* (paragraph 9)
- G** *“I’ll rescue him,” proclaimed Stone Thrower.* (paragraph 12)
- H** *Anansi plunged from the sky back toward the earth.* (paragraph 12)
- J** *Anansi landed with a gentle bounce on Puffy Pillow’s soft, springy back.* (paragraph 15)

- 21** Use “Do What You Can” and “How Six Sons Rescued Anansi” to answer the following question.

Which sentence best describes a **SIMILARITY** between the stories “Do What You Can” and “How Six Sons Rescued Anansi”?

- A** Both stories include a family who spends time together.
 - B** Both stories include characters who are rewarded for their efforts.
 - C** Both stories have characters who go on dangerous journeys.
 - D** Both stories use humor to send a message.
-

- 22** Use “Do What You Can” and “How Six Sons Rescued Anansi” to answer the following question.

How do the raindrops in the story “Do What You Can” **DIFFER** from the sons in the story “How Six Sons Rescued Anansi”?

- F** The raindrops do not have different abilities, but the sons do.
- G** The raindrops do not listen to one another, but the sons do.
- H** The raindrops do not spend time together, but the sons do.
- J** The raindrops do not like one another, but the sons do.

- 23** Use “Do What You Can” and “How Six Sons Rescued Anansi” to answer the following question.

What is one way the farmer’s experience in the story “Do What You Can” is **DIFFERENT** from Anansi’s experience in the story “How Six Sons Rescued Anansi”?

- A** The farmer changes by the end of the story, but Anansi does not change.
 - B** The farmer learns a lesson, while Anansi teaches a lesson.
 - C** The farmer’s feelings about his situation stay the same, but Anansi’s feelings about his situation improve.
 - D** The farmer’s problem is caused by nature, while Anansi’s problem is caused by an accident.
-

- 24** Use “Do What You Can” and “How Six Sons Rescued Anansi” to answer the following question.

What causes **BOTH** the raindrops in the story “Do What You Can” and the sons in the story “How Six Sons Rescued Anansi” to take action?

- F** They hope to receive a prize.
- G** They are looking for adventure.
- H** They are asked to do something.
- J** They realize someone needs help.

Read the selection and choose the best answer to each question.
Then fill in the answer on your answer document.

Make More Time for Music



A young girl
enjoys listening
to music.

© iStock.com/hidesy

- 1 Are you one of those people who loves listening to music? Do you listen to it whenever you can? If so, you're doing something good for your mind and body. If not, you should think about adding more music to your life. It just might make you happier, healthier, and better rested. It could even make you a better student.

Music and Your Mood

- 2 Music can make you smile, sing along, or get up and dance. These experiences are proof of music's power. In fact, scientists believe that music makes people happier. Valorie N. Salimpoor at McGill University has studied music and the human brain. She has proven that listening to pleasant music causes positive changes in the brain. These changes create feelings of excitement, joy, and pleasure. And those feelings make a person happy.
- 3 Two teams of researchers in Germany and Hungary have found something similar. They've shown that listening to enjoyable music can boost a person's mood. In other words, music can cheer you up when you're feeling sad. However, providing amusement is not music's only purpose. Music can also lower stress and help you worry less. That's according to scientists at the Group Health Research Institute in Seattle, Washington. Their work has shown that relaxing music can calm people who are stressed or worried.

Music Moves You

- 4 Music isn't just good for your mind and mood, though. It's also good for your body. For example, a study called "From Music-Beat to Heart-Beat" showed that music can be used to treat different diseases. Music can also lower blood pressure, which is good for your health. What's more, music gets the blood pumping when you exercise. A group of scientists from Spain and Brazil have studied how music affects runners. The scientists found that people run faster and longer when they listen to music. Music can help you bike faster too. British scientists studied bikers who listened to music with a fast beat. The faster the beat, the faster the bikers rode.

Music Helps You Sleep

- 5 How else is music good for your health? It can help you get better sleep. That's according to a research study called "Music Improves Sleep Quality in Students." This study looked at college students who had a difficult time sleeping. Some of the students were told to listen to relaxing classical music before bedtime. Those students slept better and even felt happier.

Music for Your Brain

- 6 Still not convinced that listening to music is good for you? Then you might be interested to learn that music can help you learn. Scientists in Finland, England, and the United States have shown that music helps students. Listening to music can help you when you're learning something new. It can also help you better remember what you've learned. It can even help when you take a test, according to a British study. Students who listened to background music during a test answered more test questions. They got more of the answers correct too.
- 7 Music is more than just a pleasant art. It's a powerful force that can make our lives better. It can improve our mood, our health, and even our grades. In short, it's good for you. So make time for music, and you won't regret it!

Third party trademark Group Health Research Institute® was used in these testing materials.

- 25** What is the most likely reason the author wrote this selection?
- A** To describe the best places for people to listen to music
 - B** To show why athletes should listen to more music
 - C** To explain that music is more powerful than many people realize
 - D** To suggest that music is the best way to fix bad habits
-

- 26** What can the reader infer about the results of the research study described in paragraph 5?
- F** A certain type of music encourages restful sleep for college students.
 - G** Music helps college students understand the importance of sleep.
 - H** College students are too busy to listen to music at night.
 - J** College students like classical music better than other kinds of music.
-

- 27** What claim does the author make in the selection?
- A** Teachers want their students to listen to music in class.
 - B** People should listen to music more regularly.
 - C** Students should avoid listening to music once they fall asleep.
 - D** Listening to music makes people want to exercise.

28 Based on the information throughout the selection, what can the reader conclude about students who listen to music during a test?

- F** Students will likely fall asleep during a test if there is music playing.
 - G** Students will get their blood pumping if they listen to music during a test.
 - H** Students will be less bored if they are able to listen to music during a test.
 - J** Students will feel calmer during a test if there is music playing.
-

29 What is the best summary of the selection?

- A** There are many reasons why people should listen to music. Studies show that music can improve your mood. Music is also good for the mind and body.
- B** Many people enjoy listening to music. It helps them feel less worried. In fact, one study showed that listening to music before bed can make people happier.
- C** Not everyone chooses to listen to music. However, some people listen to music because it helps them learn. Music is also good for people who have trouble sleeping.
- D** Music is able to help people become healthier. In addition, music helps people when they are trying to learn. Students who listen to music during a test get better grades.

30 Look at this photograph from the selection.



A young girl enjoys listening to music.

© iStock.com/hidesy

What is the most likely reason the author includes this photograph?

- F** To show that some people like music with a fast beat
- G** To show how some people respond to music
- H** To show that music can help people learn
- J** To show how music causes changes in the brain

31 The author uses a problem-and-solution organizational structure in the section titled “Music Helps You Sleep” to help the reader understand —

- A** that music allows people to feel more rested
- B** why most college students do not get enough sleep
- C** the steps to follow before going to sleep
- D** how music is able to get students to relax

Read the selection and choose the best answer to each question. Then fill in the answer on your answer document.

Good Night

by Maxine W. Kumin

- Of course there's nothing
in the night
that isn't there by day —
except that sometimes
5 by moonlight
the curtain has a way
of whispering to the shade
and shapes begin
to bump and play
10 as though two ghosts
had things to say
and suddenly
I'm afraid.
- That's not why I
15 put on the light.
I know just what you'll say —
of course there's nothing
in the night
that isn't there by day.
20 The reason is,
I think,
my bed's too cold,
my bed's too hot,
I had a dream,
25 I don't know what,
I need
a little drink.

And once I see
that I'm all right,
30 of course there's nothing
in the night
and that's when I
put out the light.

Used with permission.

32 In line 12, the suffix *-ly* in the word suddenly helps the reader understand that suddenly means —

- F** in a fast way
 - G** without being fast
 - H** known for being fast
 - J** a person who is fast
-

33 What is the most likely reason the poet includes the figurative language in lines 6 and 7 of the poem?

- A** To suggest that the speaker's room is too quiet at night
 - B** To emphasize what causes the speaker to imagine something
 - C** To describe objects that cannot be seen during the night
 - D** To emphasize why the speaker's room is too dark at night
-

34 Which line from the poem best explains the speaker's problem?

- F** that isn't there by day — (line 3)
- G** I'm afraid. (line 13)
- H** I know just what you'll say — (line 16)
- J** The reason is, (line 20)

35 Which line helps the reader understand that the poet uses a first-person point of view in the poem?

- A** Of course there's nothing (line 1)
 - B** except that sometimes (line 4)
 - C** by moonlight (line 5)
 - D** that I'm all right, (line 29)
-

36 What theme does the poet express in the poem?

- F** Dreams make life more interesting.
- G** People need to accept advice from others.
- H** Some problems come from our imagination.
- J** Some new experiences are more pleasant than others.



Item Number	Reporting Category	Readiness or Supporting	Content Student Expectation	Correct Answer
1	3	Readiness Standard	4.8(C)	C
2	1	Readiness Standard	4.2(B)	J
3	2	Supporting Standard	4.4(B)	C
4	3	Supporting Standard	4.6(A)	F
5	2	Supporting Standard	4.3(F)	D
6	4	Readiness Standard	4.9(A)	F
7	2	Readiness Standard	4.4(A)	8.54
8	3	Supporting Standard	4.7(E)	J
9	1	Supporting Standard	4.2(H)	B
10	3	Readiness Standard	4.5(D)	H
11	2	Readiness Standard	4.4(H)	B
12	4	Supporting Standard	4.10(A)	F
13	1	Readiness Standard	4.3(D)	C
14	2	Readiness Standard	4.5(A)	F
15	1	Readiness Standard	4.2(G)	1.8
16	2	Supporting Standard	4.4(G)	G
17	3	Readiness Standard	4.6(D)	D
18	1	Supporting Standard	4.3(B)	G
19	1	Supporting Standard	4.2(F)	C
20	2	Supporting Standard	4.4(C)	J
21	3	Supporting Standard	4.8(B)	A
22	1	Readiness Standard	4.3(D)	G
23	3	Readiness Standard	4.8(C)	D
24	2	Readiness Standard	4.3(E)	F
25	1	Readiness Standard	4.2(B)	C
26	4	Readiness Standard	4.9(A)	2
27	3	Readiness Standard	4.7(C)	B
28	2	Readiness Standard	4.5(A)	J
29	4	Supporting Standard	4.10(E)	B
30	2	Readiness Standard	4.4(H)	F
31	3	Readiness Standard	4.6(D)	C
32	1	Readiness Standard	4.2(G)	J
33	3	Readiness Standard	4.5(D)	A
34	2	Readiness Standard	4.5(B)	H

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
1	Option C is correct	To determine the time Jon took the pie out of the oven, the student could have added 35 minutes to the time Jon put the pie in the oven by counting in 5-minute intervals starting at 5:15 p.m. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.
	Option A is incorrect	The student likely added 6 sets of 5-minute increments rather than 7 sets. The student needs to focus on accurately solving problems that deal with measurements of time.
	Option B is incorrect	The student likely assumed that elapsed time always affected both hours and minutes. Having added 35 minutes correctly, the student chose the answer that also showed an increase of 1 hour. The student needs to focus on accurately solving problems that deal with measurements of time.
	Option D is incorrect	The student likely added 6 sets of 5-minute increments rather than 7 sets. Also, the student likely assumed that elapsed time affected both hours and minutes. The student needs to focus on accurately solving problems that deal with measurements of time.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
2	Option J is correct	To determine the value of the digit in the tenths place, the student could have written the given number of inches using numerals (3.14). The student then could have identified the tenths place (first digit to the right of the decimal point) and selected "0.1."
	Option F is incorrect	The student likely chose the value that matched "three" in the verbal description, since the number 14 is not given as an answer choice. The student needs to focus on matching the verbal description of a number with a numeral.
	Option G is incorrect	The student likely assumed that the digits to the right of the decimal point followed a pattern symmetrical to those to the left of the decimal point (ones, tens, hundreds, etc.). The student likely selected the second digit to the right of the decimal point as belonging in the tenths place. The student needs to focus on understanding the positions of digits to the right of the decimal point.
	Option H is incorrect	The student likely confused the term "tenths" with "tens" and chose the value in the tens place: <u>0</u> 3.14. The student needs to focus on understanding the positions of digits to the left and right of the decimal point.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
3	Option C is correct	To determine the total number of markers in 26 sets, the student could have carried out the steps of the multiplication algorithm, multiplying 100 times 26. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.
	Option A is incorrect	The student likely used the multiplication algorithm but did not use a 0 as a placeholder in the ones place when multiplying the 2 in the tens place of 26. The student needs to focus on understanding how to use placeholders of zero when carrying out the steps in the multiplication algorithm.
	Option B is incorrect	The student likely added 3 zeros after the ones place for the 3 digits in 100; ($26 \times \underline{100} = 26,\underline{000}$). The student needs to focus on understanding how to multiply accurately when carrying out the steps in the multiplication algorithm.
	Option D is incorrect	The student likely added instead of multiplying. The student needs to focus on understanding the mathematical operations (+, −, ×, ÷) needed to represent the solution to a real-world problem.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
4	Option F is correct	To determine how best to describe the drawing, the student should have identified the attributes of what is shown. The student should have recognized that the drawing shows two line segments since each figure has two endpoints. The student then should have recognized that the two line segments in the drawing are parallel, since they do not intersect and are always the same distance apart.
	Option G is incorrect	The student likely confused the definitions of the terms “parallel” and “perpendicular.” The student needs to focus on understanding the difference between parallel and perpendicular lines.
	Option H is incorrect	The student likely confused the definitions of the terms “line” and “line segment.” The student needs to focus on understanding the difference between lines and line segments.
	Option J is incorrect	The student likely confused the definitions of the terms “intersecting” and “parallel.” The student needs to focus on understanding the difference between parallel and intersecting lines.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
5	Option D is correct	To determine the true statement, the student could have used benchmark (commonly known) fractions to estimate the sum of the fractions of barbecue-flavored and cheese-flavored chips. The student should have compared $\frac{3}{5}$ to the benchmark fraction $\frac{1}{2}$ and compared $\frac{1}{3}$ to the benchmark fraction $\frac{1}{4}$. The sum of $\frac{1}{2}$ (or $\frac{2}{4}$) and $\frac{1}{4}$ is equal to $\frac{3}{4}$; therefore less than $\frac{1}{2}$ of the remaining bags are plain chips. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.
	Option A is incorrect	The student likely disregarded the second bullet point. Because $\frac{1}{3}$ is less than $\frac{1}{2}$, the student likely concluded that plain chips make up more than $\frac{1}{2}$ of the total number of bags of chips. The student needs to focus on attending to the details of problems involving the reasonableness of sums and differences involving benchmark fractions such as $\frac{1}{4}$ and $\frac{1}{2}$.
	Option B is incorrect	The student likely compared $\frac{3}{5}$ to the benchmark fraction $\frac{1}{2}$ and compared $\frac{1}{3}$ to the benchmark fraction $\frac{1}{2}$. The sum of $\frac{1}{2}$ and $\frac{1}{2}$ is equal to $\frac{2}{2}$ or 1 whole, meaning that those two flavors (barbecue and cheese) are the only chips being sold at the store. The student needs to focus on attending to the details of problems involving the reasonableness of sums and differences involving benchmark fractions such as $\frac{1}{4}$ and $\frac{1}{2}$.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
	Option C is incorrect	<p>The student likely tried to find the sum of the given fractions, $\frac{1}{3}$ and $\frac{3}{5}$, without using a common denominator. The student then added the numerators correctly, but incorrectly added the denominators $\left(\frac{1}{3} + \frac{3}{5} = \frac{4}{8}\right)$. The student then likely determined that 4 is half of 8 and therefore $\frac{4}{8}$ is equal to $\frac{1}{2}$. Based on this calculation, the student likely concluded that the remaining portion $\left(\frac{1}{2}\right)$ is plain chips. The student needs to focus on attending to the details of problems involving the reasonableness of sums and differences involving benchmark fractions such as $\frac{1}{4}$ and $\frac{1}{2}$.</p>

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
6	Option F is correct	To determine the error in the frequency table (table that shows how often each value in a set of data occurs), the student could have counted how many of the numbers in the list were in each interval in the frequency table. There are four numbers in the interval from 0 to 4 (0, 1, 4, 4), but the table shows a frequency of only three.
	Option G is incorrect	The student likely counted the numbers from 5 to 9 but did not include the number 9. The student needs to focus on understanding how to interpret data given in problems involving frequency tables.
	Option H is incorrect	The student likely accounted for the number 12 within the interval 10 to 14 but not the frequency. The student needs to focus on understanding how to interpret data given in problems involving frequency tables.
	Option J is incorrect	The student likely miscounted the data points in the interval from 15 to 19. The student needs to focus on organizing data and attending to the details in problems involving frequency tables.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
7	8.54 and any equivalent values are correct	To determine the sum of the two lengths, the student could have written the two numbers vertically, ensuring that the decimal point and each place value were aligned (the ones over the ones, the tenths over the tenths, the hundredths over the hundredths). While adding $0.8 + 0.7$, the resulting 15 tenths means that a 1 (from 1.5) should be regrouped to the ones place and added to $2 + 5$. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
8	Option J is correct	To determine the measure of the angle <i>SRV</i> , the student should have added the measures of angle <i>SRT</i> (35°) and angle <i>TRV</i> (65°) to get 100° ($35 + 65 = 100$).
	Option F is incorrect	The student likely subtracted the measure of angle <i>SRT</i> from the measure of angle <i>TRV</i> . The student needs to focus on understanding how to determine the measure of an unknown angle formed by two non-overlapping adjacent angles when given one or both angle measures.
	Option G is incorrect	The student likely made an error when regrouping, adding 10 (from $5 + 5$) to the sum of 35 and 65 to get 110° instead of 100° . The student needs to focus on understanding how to regroup when adding.
	Option H is incorrect	The student likely assumed that angle <i>SRV</i> was a right angle and concluded that the measure of the angle was 90 degrees. The student needs to focus on understanding how to determine the measure of an unknown angle formed by two non-overlapping adjacent angles when given one or both angle measures.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
9	Option B is correct	To determine the number represented by point <i>J</i> , the student could have first identified that the whole number 8 was represented by the darker tick mark halfway between the numbers 7 and 9. The student then could have counted the sections on the number line between 7 and 8 and between 8 and 9 to confirm that each section represents one-tenth. The student could have determined that since there are two sections between 8 and point <i>J</i> , point <i>J</i> represents 8.2 (eight and two-tenths).
	Option A is incorrect	The student likely confused the tenths and hundredths places, writing eight and two-tenths as 8.02 instead of 8.2. The student needs to focus on understanding the difference between tenths and hundredths when writing decimal numbers.
	Option C is incorrect	The student likely counted the number of tick marks (the lines) from 7 to point <i>J</i> , ignoring the tick mark indicating the whole number, 8. The student needs to focus on understanding how to determine the decimal number represented by a point on a number line.
	Option D is incorrect	The student likely counted the number of tick marks (the lines) starting at, and including the tick mark, 7 to point <i>J</i> , ignoring the tick mark indicating the whole number, 8. The student needs to focus on understanding how to determine the decimal number represented by a point on a number line.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
10	Option H is correct	To determine which model could represent the rectangle with a perimeter (distance around the outside of a shape) of 40 centimeters and an area (amount of space covered by a shape) of 64 square centimeters, the student could have first found the rectangle that has four sides that add up to 40 centimeters. The student then could have referred to the Area section of the STAAR Grade 4 Mathematics Reference Materials page within the student's test booklet to find the formula for the area of a rectangle ($A = l \times w$, where A = area, l = length, and w = width). The student could have used this formula to identify the correct rectangle. The rectangle with a length of 16 cm and a width of 4 cm has a perimeter of 40 centimeters ($16 + 4 + 16 + 4 = 40$ cm) and an area of 64 square centimeters ($16 \times 4 = 64$ cm ²).
	Option F is incorrect	The student likely found the area of the rectangle ($32 \times 2 = 64$ cm ²) but ignored the perimeter. The student needs to focus on understanding how to solve problems related to perimeter and area of rectangles where dimensions are whole numbers.
	Option G is incorrect	The student likely found the area of the rectangle ($8 \times 8 = 64$ cm ²) but ignored the perimeter. The student needs to focus on understanding how to solve problems related to perimeter and area of rectangles where dimensions are whole numbers.
	Option J is incorrect	The student likely found the perimeter of the rectangle ($11 + 9 + 11 + 9 = 40$ cm) but ignored the area. The student needs to focus on understanding how to solve problems related to perimeter and area of rectangles where dimensions are whole numbers.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
11	Option B is correct	To determine the number of flowers made by each fourth-grade class, the student could have divided the total number of sheets of paper (300) by the number of sheets used to make one flower (4); $300 \div 4 = 75$. Then the student could have divided the total number of flowers made (75) by the number of classes making flowers (5); $75 \div 5 = 15$. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.
	Option A is incorrect	The student likely found the total number of flowers made ($300 \div 4 = 75$) rather than the number of flowers made by each class. The student needs to focus on understanding the math operations (+, -, \times , \div) needed to solve a multi-step problem. The student also needs to focus on attending to the details of the question.
	Option C is incorrect	The student likely found the number of sheets of paper used by each class ($300 \div 5 = 60$) and then subtracted the number of sheets of paper used by one class from the total number of sheets of paper. The student needs to focus on understanding the math operations (+, -, \times , \div) needed to solve a multi-step problem.
	Option D is incorrect	The student likely made a computational error when dividing 75 by 5. The student needs to focus on understanding how to accurately carry out the steps in the division algorithm.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
12	Option F is correct	To determine which expenses were variable expenses, the student should have identified the expenses that vary from month to month. The student should have identified the water and electricity payments as the only expenses that were different amounts each month.
	Option G is incorrect	The student likely confused variable expenses with necessary expenses (rent, water, electricity). The student needs to focus on understanding that variable expenses can represent both needs and wants and are expenses that change from month to month.
	Option H is incorrect	The student likely confused the definitions of variable expenses (expenses that change from month to month) and fixed expenses (expenses that stay the same from month to month). The student needs to focus on understanding the definition of variable expenses.
	Option J is incorrect	The student likely confused variable expenses with unnecessary expenses (such as cable TV). The student needs to focus on understanding that variable expenses can represent both needs and wants and are expenses that change from month to month.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale
13	<p>Option C is correct</p> <p>To determine the person who mowed greater than $\frac{3}{4}$ of a lawn, the student could have created equivalent fractions by finding a common denominator (bottom number that is the same) for each fraction in the table and $\frac{3}{4}$. To compare $\frac{3}{4}$ and $\frac{10}{15}$, 4 and 15 can each be multiplied by a number to get 60 ($\frac{3 \times 15}{4 \times 15} = \frac{45}{60}$ and $\frac{10 \times 4}{15 \times 4} = \frac{40}{60}$; $\frac{3}{4} > \frac{10}{15}$). To compare $\frac{3}{4}$ and $\frac{5}{6}$, 4 and 6 can each be multiplied by a number to get 24 ($\frac{3 \times 6}{4 \times 6} = \frac{18}{24}$ and $\frac{5 \times 4}{6 \times 4} = \frac{20}{24}$; $\frac{3}{4} < \frac{5}{6}$). To compare $\frac{3}{4}$ and $\frac{12}{18}$, 4 and 18 can each be multiplied by a number to get 72 ($\frac{3 \times 18}{4 \times 18} = \frac{54}{72}$ and $\frac{12 \times 4}{18 \times 4} = \frac{48}{72}$; $\frac{3}{4} > \frac{12}{18}$). To compare $\frac{3}{4}$ and $\frac{6}{8}$, 4 and 8 can each be multiplied by a number to get 8 ($\frac{3 \times 2}{4 \times 2} = \frac{6}{8}$ and $\frac{6 \times 1}{8 \times 1} = \frac{6}{8}$; $\frac{3}{4} = \frac{6}{8}$). The fraction $\frac{5}{6}$ is the only fraction in the table that is greater than $\frac{3}{4}$. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.</p>
	<p>Option A is incorrect</p> <p>The student likely considered the fractions with greater numerators (top numbers) and greater denominators to be greater fractions. The student needs to focus on understanding how to compare fractions with different numerators and denominators.</p>
	<p>Option B is incorrect</p> <p>The student likely considered fractions with double-digit numerators and denominators to be greater than fractions with single-digit numerators and denominators. The student needs to focus on understanding how to compare fractions with different numerators and denominators.</p>
	<p>Option D is incorrect</p> <p>The student likely considered the fraction that is equivalent to $\frac{3}{4}$ but appears to be “doubled” to be greater than $\frac{3}{4}$. The student needs to focus on understanding how to compare fractions with different numerators and denominators.</p>

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
14	Option F is correct	To determine which strip diagram represents the total number of pictures Erin has, the student should have first recognized that the total number of pictures, p , is represented by the entire length of the strip in the diagram. Next, since Erin has twice as many vacation pictures as she does field trip pictures (12), the student could have multiplied 12 by 2 to find the number of vacation pictures. Finally, the student could have realized that 12 plus 24 equals the total number of pictures, which is represented by p .
	Option G is incorrect	The student likely divided the number of field trip pictures by 2 instead of multiplying. The student needs to focus on understanding how to use a strip diagram to represent a multistep problem involving the four operations ($+$, $-$, \times , \div). The student also needs to focus on attending to the details of the question.
	Option H is incorrect	The student likely represented only the vacation pictures, starting with 12 and then doubling it. The student needs to focus on understanding how to use a strip diagram to represent a multistep problem involving the four operations ($+$, $-$, \times , \div). The student also needs to focus on attending to the details of the question.
	Option J is incorrect	The student likely represented multiplying 12 and 2 by placing the two quantities next to each other in the strip diagram. The student needs to focus on understanding how to use a strip diagram to represent a multistep problem involving the four operations ($+$, $-$, \times , \div). The student also needs to focus on attending to the details of the question.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
15	1.8 and any equivalent values are correct	<p>To determine the decimal equivalent to $\frac{18}{10}$, the student could have rewritten the fraction as the mixed number $1\frac{8}{10}$ and then placed the 8 to the right of the decimal point, in the tenths place, to make 1.8.</p> <p>This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.</p>

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
16	Option G is correct	To determine the best estimate of the combined number of miles the family will travel next summer, the student could have rounded each number to the nearest 100 when finding the sum of the six distances. The student could have used the digit in the tens place to determine whether the digit in the hundreds place should be rounded up to the next number or kept the same (<u>8</u> 1 → 100, <u>12</u> 9 → 100, <u>18</u> 1 → 200, <u>11</u> 0 → 100, <u>28</u> 8 → 300, <u>7</u> 8 → 100). The student then could have added the rounded numbers ($100 + 100 + 200 + 100 + 300 + 100 = 900$). This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.
	Option F is incorrect	The student likely did not look at the tens digit when deciding whether to round each number up or down and instead kept the digit in the hundreds place and added two zeros in the tens and ones places ($129 \rightarrow 100$, $181 \rightarrow 100$, $110 \rightarrow 100$, $288 \rightarrow 200$). The student likely rounded 81 and 78 up to 100, since there was not a digit in the hundreds place. The student needs to focus on understanding how to round numbers and understanding reasonableness when estimating sums.
	Option H is incorrect	The student likely did not look at the tens digit when deciding whether to round each number up or down and instead rounded all numbers up to the next hundred ($81 \rightarrow 100$, $129 \rightarrow 200$, $181 \rightarrow 200$, $110 \rightarrow 200$, $288 \rightarrow 300$, $78 \rightarrow 100$). The student needs to focus on understanding how to round numbers and understanding reasonableness when estimating sums.
	Option J is incorrect	The student likely rounded correctly when working with the three-digit numbers but rounded the two-digit numbers as though they were three-digit numbers, adding a zero at the end of each number ($81 \rightarrow 800$, $78 \rightarrow 800$). The student needs to focus on understanding how to round numbers and understanding reasonableness when estimating sums.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
17	Option D is correct	To determine which statement best describes the three figures, the student could have evaluated whether each statement was true about each figure. The student should have recognized that each figure has at least one pair of perpendicular sides.
	Option A is incorrect	The student likely looked at the first figure and determined that the angle in the top right is an obtuse angle. The student needs to focus on understanding how to compare the attributes of two-dimensional figures.
	Option B is incorrect	The student likely looked at the first and last figures and determined that the angle in the bottom right is an acute angle. The student needs to focus on understanding how to compare the attributes of two-dimensional figures.
	Option C is incorrect	The student likely looked at the first figure and determined that it had only one pair of parallel sides. The student needs to focus on understanding how to compare the attributes of two-dimensional figures.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
18	Option G is correct	To determine the expression (combination of numbers and operational symbols $[+, -, \times, \div]$ grouped together to show the value) that CANNOT be used to represent the number $\frac{7}{10}$, the student could have used the model to represent $\frac{7}{10}$ (by shading 7 of the 10 rectangles) and recognized that the only expression that would result in a different number of rectangles being shaded is the expression $\frac{4}{10} + \frac{4}{10} + \frac{3}{10}$, because this expression totals $\frac{11}{10}$.
	Option F is incorrect	The student likely shaded 7 of the 10 rectangles to represent $\frac{7}{10}$ but added the fractions in the expression $\frac{2}{10} + \frac{2}{10} + \frac{2}{10} + \frac{1}{10}$ incorrectly, resulting in $\frac{7}{40}$, which is not equal to $\frac{7}{10}$. The correct sum of $\frac{2}{10} + \frac{2}{10} + \frac{2}{10} + \frac{1}{10}$ is $\frac{7}{10}$. The student needs to focus on adding fractions correctly in problems that require finding expressions that are equal to fractions.
	Option H is incorrect	The student likely shaded 7 of the 10 rectangles to represent $\frac{7}{10}$ but added the fractions in the expression $\frac{6}{10} + \frac{1}{10}$ incorrectly, resulting in $\frac{7}{20}$, which is not equal to $\frac{7}{10}$. The correct sum of $\frac{6}{10} + \frac{1}{10}$ is $\frac{7}{10}$. The student needs to focus on adding fractions correctly in problems that require finding expressions that are equal to fractions.
	Option J is incorrect	The student likely shaded 7 of the 10 rectangles to represent $\frac{7}{10}$ but added the fractions in the expression $\frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10}$ incorrectly, resulting in $\frac{7}{70}$, which is not equal to $\frac{7}{10}$. The correct sum of $\frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10}$ is $\frac{7}{10}$. The student needs to focus on adding fractions correctly in problems that require finding expressions that are equal to fractions.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
19	Option C is correct	To determine which stores have a price greater than \$1.60 but less than \$1.90 for a pound of grapes, the student should have recognized that each model has one whole (100 small squares within the large square) shaded. The student then should have found the model that has 61 to 89 small squares shaded (each small square represents 1 hundredth). Store L represents 1 whole and 88 hundredths (\$1.88), and Store N represents 1 whole and 78 hundredths (\$1.78).
	Option A is incorrect	The student likely found all the stores that sell a pound of grapes for more than \$1.60 (the lower limit) but did not check to see if the stores exceeded the upper limit (\$1.90). The model for Store P has 1 whole and 99 hundredths shaded, representing \$1.99. The student needs to focus on interpreting models used to represent wholes, tenths, and hundredths. The student also needs to focus on attending to the details of the question.
	Option B is incorrect	The student likely misplaced the 7 in the tenths place rather than the hundredths place when analyzing the model for Store M (1 whole shaded and 7 hundredths shaded, representing \$1.07). The student needs to focus on interpreting models used to represent wholes, tenths, and hundredths.
	Option D is incorrect	The student likely did not connect the visual models with the price of a pound of grapes. The student needs to focus on understanding how to interpret models used to represent wholes, tenths, and hundredths.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
20	Option J is correct	To determine the equation represented by the incomplete array, the student could have counted the number of circles in the row (horizontal, 14) and the number of circles in the column (vertical, 13). The student then could have recognized that the completed array would model the equation $13 \times 14 = 182$. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.
	Option F is incorrect	The student likely excluded the circle shared by both the row and the column of the array (the circle in the top left-hand corner). The student needs to focus on understanding how an array models the product of a multiplication problem.
	Option G is incorrect	The student likely counted the number of circles in the row but excluded the first circle when counting the number of circles in the row. The student needs to focus on understanding how an array models the product of a multiplication problem.
	Option H is incorrect	The student likely counted the number of circles in the column but excluded the first circle when counting the number of circles in the column. The student needs to focus on understanding how an array models the product of a multiplication problem.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
21	Option A is correct	To determine the length of the painted wall in inches, the student could have used the relationship shown in the table (number of feet \times 12 = number of inches). The student then could have multiplied 12 by 12, resulting in a total of 144 inches. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.
	Option B is incorrect	The student likely saw that 10 feet was equivalent to 120 inches and added 2 more ($10 + 2 = 12$ feet) to the total number of inches ($120 \text{ inches} + 2 \text{ feet} = 122 \text{ inches}$). The student needs to focus on understanding that multiplication and division can be used as efficient ways to convert (change) measurements within the same measurement system.
	Option C is incorrect	The student likely added the least and greatest numbers of inches in the table but did not check by adding the equivalent values in feet ($10 + 3 \neq 12$). The student needs to focus on understanding that multiplication and division can be used as efficient ways to convert (change) measurements within the same measurement system.
	Option D is incorrect	The student likely added the first and third row of values in the table, incorrectly adding 3 feet and 8 feet to get 12 feet. The student needs to focus on understanding that multiplication and division can be used as efficient ways to convert (change) measurements within the same measurement system.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
22	Option G is correct	<p>To determine which comparison is true, the student could have found a common denominator (bottom number of the fraction that is the same) for each fraction listed. Since the fractions have denominators of 2, 4, 5, 10, and 20, the student could have recognized that a common denominator for all the fractions could be 20. The student then could have written each fraction in its equivalent form based on the common denominator of 20:</p> $\frac{17 \times 1}{20 \times 1} = \frac{17}{20}, \frac{1 \times 10}{2 \times 10} = \frac{10}{20}, \frac{9 \times 2}{10 \times 2} = \frac{18}{20}, \frac{4 \times 4}{5 \times 4} = \frac{16}{20}, \text{ and } \frac{3 \times 5}{4 \times 5} = \frac{15}{20}$ <p>The student then could have compared the numerators (top numbers) of the two fractions. Since 17 is less than 18, $\frac{17}{20} < \frac{18}{20}$, which is equivalent to $\frac{17}{20} < \frac{9}{10}$. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.</p>
	Option F is incorrect	<p>The student likely considered the fraction with the larger fractional pieces (of equivalent wholes) to be the greater fraction. The student needs to focus on understanding how to compare fractions with different numerators and denominators.</p>
	Option H is incorrect	<p>The student likely considered the fraction with the larger fractional pieces (of equivalent wholes) to be the greater fraction. The student needs to focus on understanding how to compare fractions with different numerators and denominators.</p>
	Option J is incorrect	<p>The student likely considered the fraction with the larger fractional pieces (of equivalent wholes) to be the greater fraction. The student needs to focus on understanding how to compare fractions with different numerators and denominators.</p>

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
23	Option D is correct	To determine the amount of water remaining in quarts and cups, the student could have subtracted 1 quart from the initial 3 quarts ($3 - 1 = 2$ quarts) and then regrouped 1 quart to 4 cups (1 quart and 4 cups). The student then could have subtracted the 3 cups that were poured into the sink ($4 - 3 = 1$ cup). There is 1 quart and 1 cup of water remaining. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.
	Option A is incorrect	The student likely added the 1 quart and 3 cups that were poured into the sink to 3 quarts instead of finding the difference. The student needs to focus on identifying relative sizes of measurement units within customary and metric systems. The student also needs to focus on attending to the details of the question.
	Option B is incorrect	The student likely subtracted the smaller number of cups (3 quarts <u>0 cups</u>) from the larger number of cups (1 quart <u>3 cups</u>); $3 \text{ cups} - 0 \text{ cups} = 3 \text{ cups}$. The student needs to focus on identifying relative sizes of measurement units within customary and metric systems. The student also needs to focus on understanding when to regroup in subtraction problems.
	Option C is incorrect	The student likely did not regroup when subtracting 1 quart 3 cups from 3 quarts. The student needs to focus on identifying relative sizes of measurement units within customary and metric systems. The student also needs to focus on understanding when to regroup in subtraction problems.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
24	Option F is correct	To determine the equation that shows the fraction of bushes that are lilac bushes, the student should have counted the total number of squares and used that number as the denominator (bottom number of a fraction). The student then should have counted the number of shaded squares and used the number of shaded squares in each row as the numerator (top number of a fraction). The first row has 4 shaded squares, the second row has 3 shaded squares, the third row has 3 shaded squares, and the fourth row has 5 shaded squares. The student then could have written the value for each row as a fraction and added to determine the result: $\frac{4}{28} + \frac{3}{28} + \frac{3}{28} + \frac{5}{28} = \frac{15}{28}$.
	Option G is incorrect	The student likely counted the unshaded squares in each row, using the number of unshaded squares instead of the number of shaded squares as the numerator of each fraction. The student needs to focus on attending to the details of the question being asked in a problem.
	Option H is incorrect	The student likely counted the number of shaded squares in each row, using the number of shaded squares as the numerator of each fraction and the total number of squares in each row as the denominator. The student needs to focus on understanding how to determine denominators in problems involving fractions.
	Option J is incorrect	The student likely counted the shaded squares (15) and unshaded squares (13) in the model, creating a fraction for each using the total number of squares as the denominator. The student needs to focus on attending to the details of the question being asked in a problem.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
25	Option C is correct	To determine the number Yolanda wrote, the student should have realized that in the number 58,346,000.12, the 8 is in the millions place (5 <u>8</u> ,346,000.12), the 6 is in the thousands place (58,34 <u>6</u> ,000.12), and the 2 is in the hundredths place (58,346,000. <u>12</u>). Since the conditions of the problem were met, the student should have chosen 58,346,000.12.
	Option A is incorrect	The student likely confused the millions place with the ten-millions place (<u>8</u> 6,346,000.12). The student needs to focus on understanding the place values of digits in a number.
	Option B is incorrect	The student likely confused the hundredths place with the tenths place (38,056,000. <u>2</u> 1). The student needs to focus on understanding the place values of digits in a number.
	Option D is incorrect	The student likely confused the thousands place with the hundred-thousands place (98, <u>6</u> 74,200.21) and the hundredths place with the hundreds place (98,674, <u>2</u> 00.21). The student needs to focus on understanding the place values of digits in a number.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
26	2 and any equivalent values are correct	To determine the number that is missing from the stem and leaf plot (a stem and leaf plot displays the data with each number split into a stem [the first digit or digits of a number] and a leaf [the last digit of a number]), the student could have written the data in order from least to greatest and systematically checked each data point until identifying the data point that would complete the stem and leaf plot. Since 92 is not represented in the stem and leaf plot but is a data point, the student could have determined that the 2 from 9 2 was needed to complete the stem and leaf plot. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
27	Option B is correct	To determine the measure of angle TUV (the amount of turn between two lines around their common point) to the nearest degree, the student could have found the two measures on the same scale (the measurement values shown on the protractor) through which the two rays (\rightarrow , part of a line with only one endpoint) of the angle pass. The student then could have subtracted the smaller measure from the larger measure. On the inside scale, \overrightarrow{UV} passes through 70° and \overrightarrow{UT} passes through 10° , so the measure of angle TUV is 60° ($70^\circ - 10^\circ$). Alternatively, on the outside scale, \overrightarrow{UV} passes through 110° and \overrightarrow{UT} passes through 170° , confirming that the measure of angle TUV is 60° ($170^\circ - 110^\circ$). This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.
	Option A is incorrect	The student likely recognized that \overrightarrow{UT} passes through 170° on the outside scale and interpreted 170° to be the measure of the angle. The student needs to focus on understanding that the measures through which rays pass must be subtracted to find the measure of an angle.
	Option C is incorrect	The student likely recognized that \overrightarrow{UV} passes through 110° on the outside scale and interpreted 110° to be the measure of the angle. The student needs to focus on understanding that the measures through which rays pass must be subtracted to find the measure of an angle.
	Option D is incorrect	The student likely recognized that \overrightarrow{UT} passes through 10° on the inside scale and interpreted 10° to be the measure of the angle. The student needs to focus on understanding that the measures through which rays pass must be subtracted to find the measure of an angle.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
28	Option J is correct	To determine the set of equations that can be used to find the total number of books returned to the library, the student should have identified a set of equations where the number of books returned on Thursday (50) is multiplied by 4, because 4 times as many books were returned to the library on Friday: $50 \times 4 = 200$. The student then should have recognized that the total number of books, b , is the sum of 200 and the number of books returned on Thursday: $200 + 50 = b$.
	Option F is incorrect	The student likely chose this set of equations after misinterpreting the number of books that were returned on Thursday and Friday as each being 50 ($50 + 50 = 100$). The student then chose an equation in which 100 is multiplied by 4, because 4 times as many books were returned to the library: $100 \times 4 = b$. The student needs to focus on attending to the details in the problem and identifying the correct mathematical operations (+, −, ×, ÷) needed to represent the solution to a multistep problem using equations.
	Option G is incorrect	The student likely chose this set of equations after misinterpreting the number of books that were returned on Thursday and Friday as each being 50 ($50 + 50 = 100$). The student then misinterpreted “4 times as many” as being 4 more than the total (100). The student needs to focus on attending to the details in the problem and identifying the correct mathematical operations (+, −, ×, ÷) needed to represent the solution to a multistep problem using equations.
	Option H is incorrect	The student likely chose a set of equations that correctly determined the number of books returned on Friday ($50 \times 4 = 200$) but did not use the correct operation to represent the total number of books returned to the library. The student needs to focus on understanding the mathematical operations (+, −, ×, ÷) needed to represent the solution to a multistep problem using equations.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
29	Option B is correct	To determine the statement that best describes the primary services of a bank, the student should have recognized that customers can borrow money from a bank, put money into a savings or checking account, and cash checks at a bank.
	Option A is incorrect	The student likely understood that customers can put money into a savings or checking account and cash checks at a bank but did not realize that customers can borrow money from a bank. The student needs to focus on understanding all the primary services of a bank.
	Option C is incorrect	The student likely confused the primary services of a bank with a primary service of a post office. The student needs to focus on understanding the primary services of a bank.
	Option D is incorrect	The student likely confused some of the primary services of a bank with a primary service of a post office and did not realize that customers can cash checks at a bank. The student needs to focus on understanding the primary services of a bank.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
30	Option F is correct	To determine the greatest number of cakes the baker can make, the student could have determined the total number of eggs available by multiplying the number of cartons by the number of eggs in each carton ($8 \times 12 = 96$ eggs). The student then could have divided the total number of eggs available by the number of eggs used in each cake ($96 \div 9 = 10$ cakes, with 6 eggs remaining). This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.
	Option G is incorrect	The student likely performed the correct calculations but rounded the number of cakes to 11 to account for the 6 remaining eggs. The student needs to focus on attending to the details of the question being asked in a two-step problem.
	Option H is incorrect	The student likely multiplied the number of eggs used in each cake by the number of egg cartons ($9 \times 8 = 72$) and divided by the number of eggs in each carton ($72 \div 12 = 6$). The student needs to focus on attending to the details of the question being asked in a two-step problem.
	Option J is incorrect	The student likely multiplied the number of eggs used in each cake by the number of eggs in each carton ($9 \times 12 = 108$) and divided by the number of cartons ($108 \div 8 = 13$ cakes, with 4 eggs remaining). The student needs to focus on attending to the details of the question being asked in a two-step problem.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
31	Option C is correct	To determine the figure that has at least one acute angle (angle that is less than 90°), right angle (angle that is equal to 90°), and obtuse angle (angle that is greater than 90° and less than 180°), the student could have examined each figure. Figure X has one acute angle (in the lower right corner), two right angles (in the lower left corner and upper left corner), and one obtuse angle (in the upper right corner).
	Option A is incorrect	The student likely identified that the trapezoid contains at least one obtuse angle (angle that is greater than 90° and less than 180°) and at least one acute angle (angle that is less than 90°) but misidentified one of the angles as a right angle (angle that is equal to 90°). The student needs to focus on recognizing the difference between acute, obtuse, and right angles in polygons.
	Option B is incorrect	The student likely identified the heptagon (a figure with seven sides) as having at least one obtuse angle (angle that is greater than 90° and less than 180°) but misidentified one angle as an acute angle (angle that is less than 90°), and one angle as a right angle (angle that is equal to 90°). The student needs to focus on recognizing the difference between acute, obtuse, and right angles in polygons.
	Option D is incorrect	The student likely identified the triangle as having one right angle (angle that is equal to 90°) and one acute angle (angle that is less than 90°) but misidentified one of the acute angles as an obtuse angle (angle that is greater than 90° and less than 180°). The student needs to focus on recognizing the difference between acute, obtuse, and right angles in polygons.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
32	Option J is correct	To determine the mixed number equivalent to 17.04, the student could have recognized that the number 17.04 is equivalent to $17 + 0.04$. The decimal 0.04 (4 hundredths) is equal to the fraction $\frac{4}{100}$. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.
	Option F is incorrect	The student likely recognized that 17 is a whole number and should be placed to the left of the fraction but confused tenths and hundredths, thinking that the 4 in the number 17.04 has a value of 4 tenths $\left(\frac{4}{10}\right)$ rather than 4 hundredths $\left(\frac{4}{100}\right)$. The student needs to focus on understanding the value of each digit in a decimal number and how to convert these values to fractions.
	Option G is incorrect	The student likely recognized that 17 was a whole number and should be placed to the left of the fraction but placed the 4 as the denominator and chose a numerator of 1. The student needs to focus on understanding the value of each digit in a decimal number and how to convert these values to fractions.
	Option H is incorrect	The student likely recognized that 17 was a whole number and should be placed to the left of the fraction but confused the hundredths place as mirroring the tens place. A 4 in the tens place (two places to the left of the decimal point) would signify the number 40; therefore, the student likely thought a 4 in a similar position (two places to the right of the decimal) could be written as 40 tenths. The student needs to focus on understanding the value of each digit in a decimal number and how to convert these values to fractions.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
33	Option A is correct	To determine the area of (amount of space covered by) the place mat in square inches, the student could have referred to the Area section of the STAAR Grade 4 Mathematics Reference Materials page within the test booklet to find the formula for the area of a rectangle ($A = l \times w$, where A = area, l = length, and w = width). The student should have calculated the area as 18×12 , resulting in 216 square inches.
	Option B is incorrect	The student likely added the side lengths ($18 + 12 + 18 + 12 = 60$) to find the perimeter (distance around the outside) of the place mat instead of multiplying the length and width to find the area. The student needs to focus on understanding the difference between area and perimeter calculations and when to use each to solve problems.
	Option C is incorrect	The student likely correctly chose to multiply 18 by 12 but did not use a zero placeholder for the ones place in the second multiplication step, resulting in 54 ($18 \times 2 = 36$; $18 \times 1 = 18$; $36 + 18 = 54$). The student needs to focus on understanding how to use placeholders of zero when carrying out the steps in the multiplication algorithm.
	Option D is incorrect	The student likely added the length (18) and width (12) and then multiplied the sum by itself ($30 \times 30 = 900$) as one would to find the area of a square. The student needs to focus on understanding that the area of a rectangle is determined by multiplying the length and the width.

2022 STAAR Grade 4 Mathematics Rationales

Item #	Rationale	
34	Option H is correct	To determine which rule can be used to find the value when given the position, the student should have considered the relationship between each position and each value listed in the table. Since each output value is 21 times its paired input value, the expression involves multiplying the position number by 21 ($1 \times 21 = 21$; $2 \times 21 = 42$; $3 \times 21 = 63$; $4 \times 21 = 84$). The student should have chosen the set of expressions that shows position \times 21.
	Option F is incorrect	The student likely reversed the relationship, confusing the position of a number and its value. The student likely focused only on the first row of the table, recognizing that 1 is 20 less than 21, and used subtraction of 20 to represent the expression in the table ($21 - 20 = 1$). The student did not check to see if this relationship were true for the other positions and values in the table. The student needs to focus on understanding that the relationship between the position of a number in a pattern and its value must be true for all the numbers in the pattern.
	Option G is incorrect	The student likely focused only on the first row of the table, recognizing that the first value, 21, is 20 more than its position, 1, and used an addition of 20 to represent the expression in the table ($1 + 20 = 21$). The student did not check to see if this relationship were true for the other positions and values in the table. The student needs to focus on understanding that the relationship between the position of a number in a pattern and its value must be true for all the numbers in the pattern.
	Option J is incorrect	The student likely focused only on the first column of the table, representing the position, recognizing that the second positions, 2, is twice the first position, 1, and used multiplication of 2 to represent the expression in the table ($1 \times 2 = 2$). The student did not check to see if this relationship were true for the other positions and values in the table. The student needs to focus on understanding that the relationship between the position of a number in a pattern and its value must be true for all the numbers in the pattern.