STAR Test Sample Questions

6th Grade Mathematics

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Standardized Testing and Reporting - STAR

Grade 6: Mathematics

Algebra and Functions (Performance Level: Advanced) – Question 01

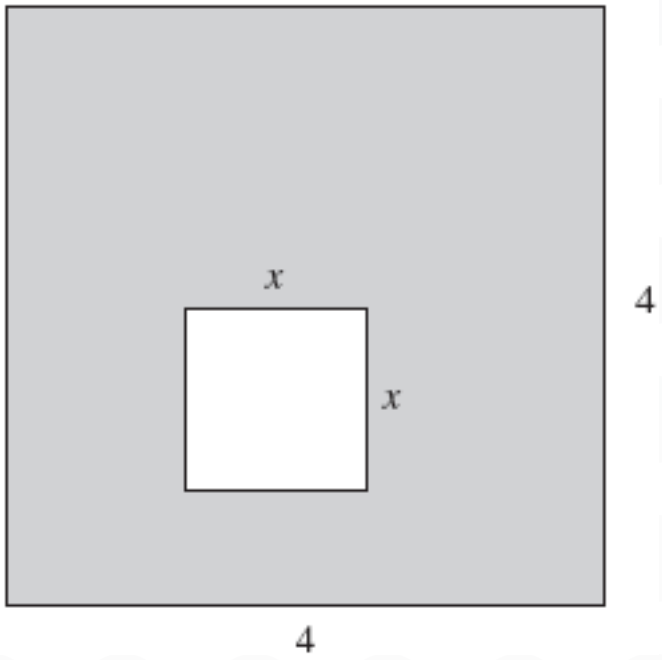
$$8 + 8 \div 2 + 2 =$$

A 4
B 8
C 10
D 14

Grade 6: Mathematics

Algebra and Functions (Performance Level: Advanced) – Question 02

A square with a side of x is inside a square with a side of 4, as pictured below. Which expression represents the area of the shaded region in terms of x?



A $16 + x^2$

B $16 - x^2$

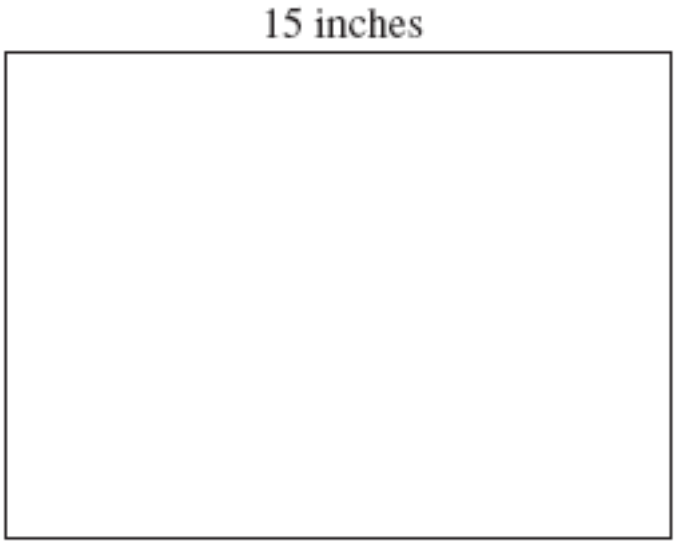
C $16 - 2x$

D $16 - 4x$

Grade 6: Mathematics

Algebra and Functions (Performance Level: Advanced) – Question 03

The rectangle shown below has length 15 inches and perimeter P inches.



Which equation could be used to find the width of the rectangle?

A $P = 15 + \frac{w}{2}$

B $P = 15 - w$

C $P = 30 + 2w$

D $P = 30 - 2w$

Grade 6: Mathematics

Algebra and Functions (Performance Level: Proficient) – Question 01

What value of k makes the following equation true?

$$k \div 3 = 36$$

A 108
B 98
C 39
D 12

Grade 6: Mathematics

Algebra and Functions (Performance Level: Proficient) – Question 02

A telephone company charges $0.05 per minute for local calls and $0.12 per minute for longdistance calls. Which expression gives the total cost in dollars for x minutes of local calls and y minutes of long-distance calls?

A $0.05x + 0.12y$

B $0.05x - 0.12y$

C $0.17(x + y)$

D 0.17xy

Grade 6: Mathematics

Algebra and Functions (Performance Level: Proficient) – Question 03

How many inches are in $2\frac{1}{2}$ feet?

A 24 inches
B 25 inches
C 29 inches
D 30 inches

Grade 6: Mathematics

Algebra and Functions (Performance Level: Proficient) – Question 04

It takes a machine 12 minutes to fill 200 bottles of soda. At this rate, how many minutes will it take the machine to fill 500 bottles of soda?

A 25 minutes
B 28 minutes
C 30 minutes
D 40 minutes

Grade 6: Mathematics

Algebra and Functions (Performance Level: Proficient) – Question 05

A water tank will hold 50 gallons. What flow rate, in gallons per second, is required to fill the tank in 20 seconds?

A 0.4
B 2.5
C 16.7
D 70

Grade 6: Mathematics

Algebra and Functions (Performance Level: Proficient) – Question 06

Jerry read a 200-page book in 10 hours. At that rate, how long will it take him to read a 320-page book?

A 16 hours
B 18 hours
C 24 hours
D 32 hours

Grade 6: Mathematics

Algebra and Functions (Performance Level: Basic) – Question 01

The Sojourn family went on a vacation. They started with $2000. If they spent $150 each day, which expression represents how much money they had after x days?

A 1850x
B $2000 - 150x$
C 150x
D $2000 + 150x$

Grade 6: Mathematics

Algebra and Functions (Performance Level: Basic) – Question 02

Ellen had some change in her pocket. After her friend gave her $0.45, Ellen had $1.35 altogether. Which equation can she use to find the original amount of money, m, she had in her pocket?

A $m + 0.45 = 1.35$

B $1.35 = m - 0.45$

C $m = 1.35 \times 0.45$

D $m + 1.35 = 0.45$

Grade 6: Mathematics

Algebra and Functions (Performance Level: Basic) – Question 03

What is x if $3x = 84$?

A 20
B 21
C 26
D 28

Grade 6: Mathematics

Algebra and Functions (Performance Level: Basic) – Question 04

Sheila has been given 5 minutes to solve 20 arithmetic problems. What is the minimum rate Sheila can work in order to finish in time?

A 1 problem per minute
B 2 problems per minute
C 4 problems per minute
D 5 problems per minute

Grade 6: Mathematics

Algebra and Functions (Performance Level: Basic) – Question 05

Marcus spent $3.25 to wash his car. If one quarter operates the car wash for 60 seconds, how long did it take him to wash his car?

A 10 minutes
B 13 minutes
C 16 minutes
D 32.5 minutes

Grade 6: Mathematics

Algebra and Functions (Performance Level: Below Basic) – Question 01

If $x - 3 = 6$, what is the value of x?

A 2
B 3
C 6
D 9

Grade 6: Mathematics

Measurement and Geometry (Performance Level: Advanced) – Question 01

Which equation could be used to find the area in square inches of a circle with a radius of 8 inches?

A $A = 4 \times \pi$

B $A = \pi \times 4^2$

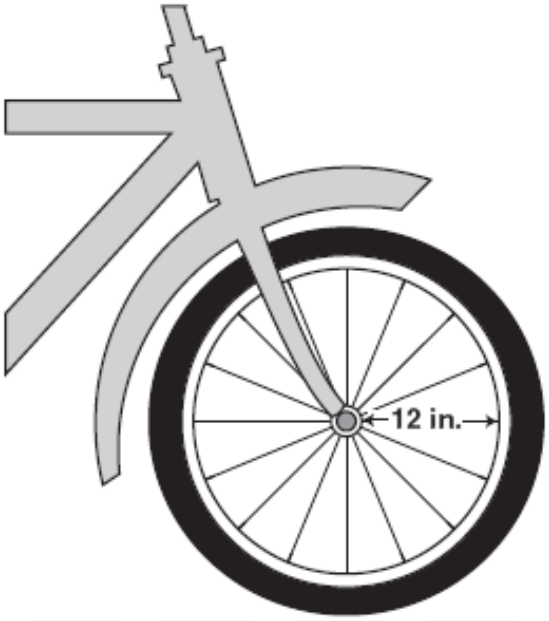
C $A = 8 \times \pi$

D $A = \pi \times 8^2$

Grade 6: Mathematics

Measurement and Geometry (Performance Level: Advanced) – Question 02

A bicycle wheel has an inside radius of 12 inches. Which expression could be used to find the inside circumference of this wheel?



A $2 \times 6 \times \pi$

B $2 \times 12 \times \pi$

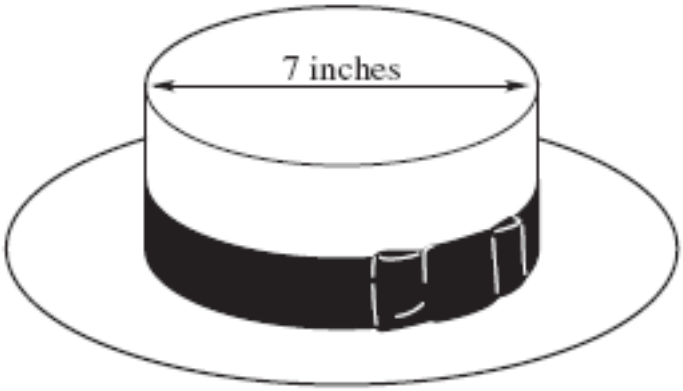
C $9 \times 9 \times \pi$

D $12 \times 12 \times \pi$

Grade 6: Mathematics

Measurement and Geometry (Performance Level: Advanced) – Question 03

The top part of this hat is shaped like a cylinder with a diameter of 7 inches.



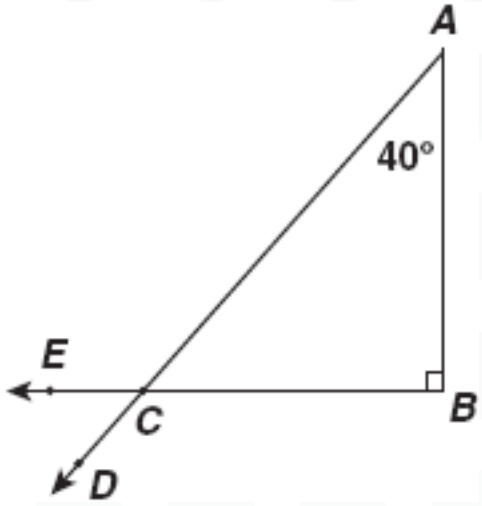
Which measure is closest to the length of the band that goes around the outside of the hat?

A 10.1 inches
B 11.0 inches
C 22.0 inches
D 38.5 inches

Grade 6: Mathematics

Measurement and Geometry (Performance Level: Advanced) – Question 04

In the figure below, ΔABC is a right triangle and $m\angle A = 40°$.



What is $m\angle ECD$?

A 40°
B 50°
C 130°
D 140°

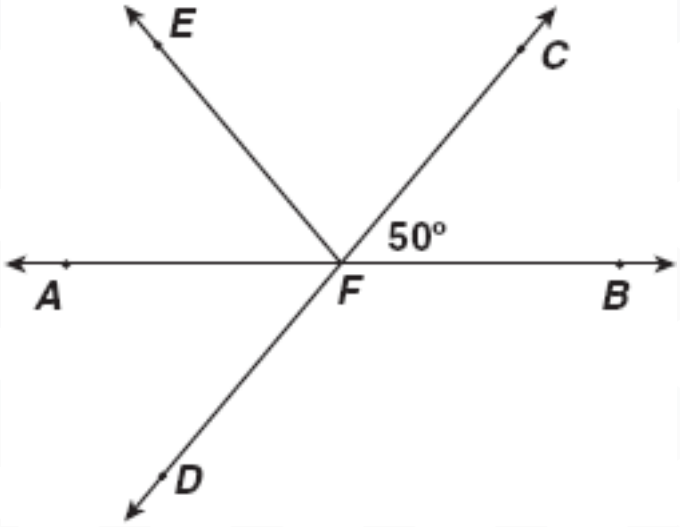
Grade 6: Mathematics

Measurement and Geometry (Performance Level: Advanced) – Question 05

In the figure below, $\overleftrightarrow{CD}$ intersects $\overleftrightarrow{AB}$ at F,

$m\angle CFB = 50°$, and $\angle EFA \cong \angle AFD$.

What is $m\angle EFC$?

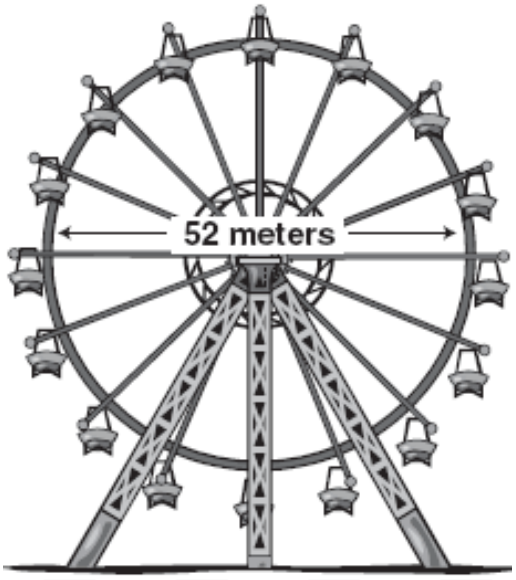


A 40°
B 50°
C 70°
D 80°

Grade 6: Mathematics

Measurement and Geometry (Performance Level: Proficient) – Question 01

A Ferris wheel at the local fair has a diameter of 52 meters. Which expression can be used to find its circumference, C, in meters?



A $C = 26 \times \pi$

B $C = 52 \times \pi$

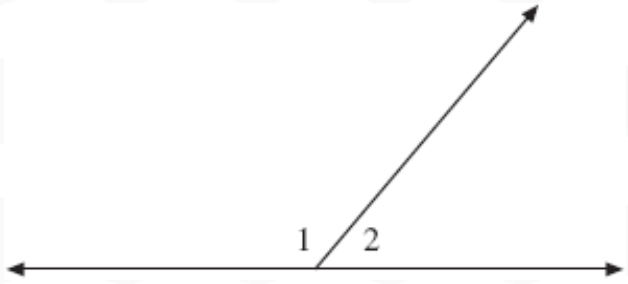
C $C = 2 \times 52 \times \pi$

D $C = 26^2 \pi$

Grade 6: Mathematics

Measurement and Geometry (Performance Level: Proficient) – Question 02

Which is a true statement about angles 1 and 2 shown below?



A $\angle 1$ is complementary to $\angle 2$.

B $\angle 1$ is supplementary to $\angle 2$.

C Both angles are obtuse.

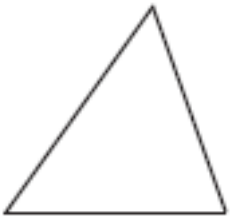
D Both angles are acute.

Grade 6: Mathematics

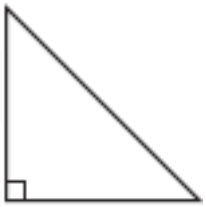
Measurement and Geometry (Performance Level: Proficient) – Question 03

Which figure is an acute triangle?

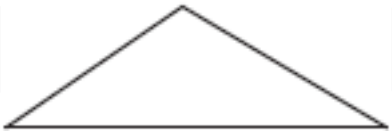
A



C



B



D

Grade 6: Mathematics

Measurement and Geometry (Performance Level: Basic) – Question 01

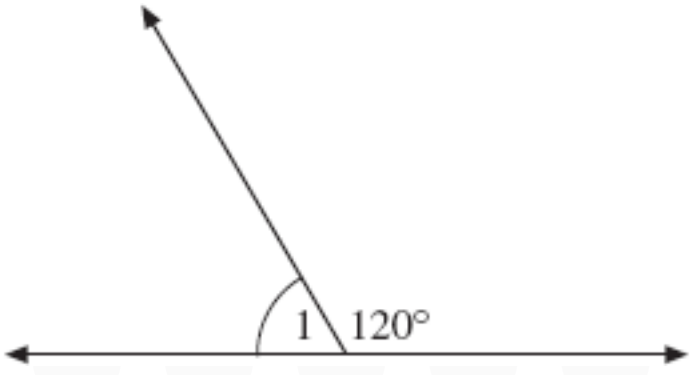
A tank is in the shape of a triangular prism. If the triangular base has an area of 116 square feet, and the tank is 30 feet tall, how much water would the tank contain when it is full?

A 1725 ft3
B 1740 ft3
C 3480 ft3
D 6960 ft3

Grade 6: Mathematics

Measurement and Geometry (Performance Level: Basic) – Question 02

What is the measure of angle 1 in the figure below?



A 30°
B 40°
C 60°
D 80°

Grade 6: Mathematics

Number Sense - Operations and Problem Solving with Fractions (Performance Level: Advanced) – Question 01

A group of hikers climbed from Salt Flats (elevation –55 feet) to Talon Bluff (elevation 620 feet). What is the difference in elevation between Talon Bluff and Salt Flats?

A 565 feet
B 575 feet
C 665 feet
D 675 feet

Grade 6: Mathematics

Number Sense - Operations and Problem Solving with Fractions (Performance Level: Proficient) – Question 01

What is $\frac{10}{11} \times \frac{11}{12}$**?**

A $\frac{5}{6}$

B $\frac{21}{23}$

C $1\frac{1}{120}$

D 2

Grade 6: Mathematics

Number Sense - Operations and Problem Solving with Fractions (Performance Level: Proficient) – Question 02

$$12 \div -3 =$$

A 9

B 4

C $-\frac{1}{4}$

D -4

Grade 6: Mathematics

Number Sense - Operations and Problem Solving with Fractions (Performance Level: Proficient) – Question 03

$$-4+(-3)=$$

A -7
B -1
C 1
D 7

Grade 6: Mathematics

Number Sense - Operations and Problem Solving with Fractions (Performance Level: Proficient) – Question 04

One morning, the temperature was 5° below zero. By noon, the temperature rose 20° Fahrenheit (F) and then dropped 8°F by evening. What was the evening temperature?

A 17° below zero
B 15° below zero
C 12° above zero
D 7° above zero

Grade 6: Mathematics

Number Sense - Operations and Problem Solving with Fractions (Performance Level: Proficient) – Question 05

$$\frac{3}{8}+\frac{1}{12}=$$

A $\frac{1}{5}$

B $\frac{1}{6}$

C $\frac{11}{24}$

D $\frac{11}{48}$

Grade 6: Mathematics

Number Sense - Operations and Problem Solving with Fractions (Performance Level: Basic) – Question 01

The ticket prices to a play are $5.00 for teachers and $3.00 for students. How much will it cost for a group of 71 students and 5 teachers to see the play?

A $228.00
B $238.00
C $370.00
D $380.00

Grade 6: Mathematics

Number Sense - Operations and Problem Solving with Fractions (Performance Level: Basic) – Question 02

What is the greatest common divisor of 54, 36, and 24?

A 2
B 3
C 6
D 9

Grade 6: Mathematics

Number Sense - Operations and Problem Solving with Fractions (Performance Level: Basic) – Question 03

What is $\frac{12}{60}$ expressed in lowest terms?

A $\frac{1}{8}$

B $\frac{1}{6}$

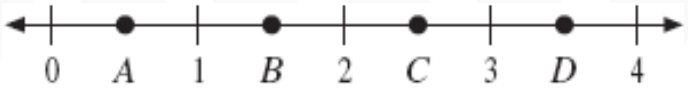
C $\frac{1}{5}$

D $\frac{1}{4}$

Grade 6: Mathematics

Number Sense - Ratios, Proportions, Percentages, and Negative Fractions (Performance Level: Advanced) – Question 01

Which point shows the location of $\frac{3}{2}$ on the number line?



A point A
B point B
C point C
D point D

Grade 6: Mathematics

Number Sense - Ratios, Proportions, Percentages, and Negative Fractions (Performance Level: Advanced) – Question 02

Which of the following fractions is closest to 0?

A $-\frac{5}{12}$

B $-\frac{2}{3}$

C $\frac{5}{6}$

D $\frac{3}{4}$

Grade 6: Mathematics

Number Sense - Ratios, Proportions, Percentages, and Negative Fractions (Performance Level: Advanced) – Question 03

A farmer harvested 14,000 pounds of almonds from an 8-acre orchard. Which proportion could be solved to find x, the expected harvest from a 30-acre orchard?

A $\frac{8}{14,000} = \frac{x}{30}$

B $\frac{8}{14,000} = \frac{30}{x}$

C $\frac{30}{14,000} = \frac{x}{8}$

D $\frac{30}{14,000} = \frac{8}{x}$

Grade 6: Mathematics

Number Sense - Ratios, Proportions, Percentages, and Negative Fractions (Performance Level: Advanced) – Question 04

The vice president of sales took a client out to lunch. If the lunch was $44 and she gave a 20% tip, how much money did she spend on lunch?

A $8.80
B $35.20
C $52.80
D $53.80

Grade 6: Mathematics

Number Sense - Ratios, Proportions, Percentages, and Negative Fractions (Performance Level: Advanced) – Question 05

If 50% of a number is 20, what is 75% of the number?

A 8
B 15
C 30
D 45

Grade 6: Mathematics

Number Sense - Ratios, Proportions, Percentages, and Negative Fractions (Performance Level: Advanced) – Question 06

The original price of a new bicycle is $138.00. If the bicycle is marked down 15%, what is the new price?

A $20.70
B $117.30
C $123.00
D $153.00

Grade 6: Mathematics

Number Sense - Ratios, Proportions, Percentages, and Negative Fractions (Performance Level: Advanced) – Question 07

In a scale drawing, $\frac{1}{2}$ inch represents 3 feet.

If the same scale is used, how many inches will be needed to represent 24 feet?

A 2 inches
B 4 inches
C 8 inches
D 12 inches

Grade 6: Mathematics

Number Sense - Ratios, Proportions, Percentages, and Negative Fractions (Performance Level: Proficient) – Question 01

The weekly milk order for the Tranquility Inn includes 40 gallons of low-fat milk and 15 gallons of chocolate milk. What is the ratio of the number of low-fat gallons to chocolate gallons in the Tranquility Inn's weekly milk order?

A 3:1
B 5:1
C 5:3
D 8:3

Grade 6: Mathematics

Number Sense - Ratios, Proportions, Percentages, and Negative Fractions (Performance Level: Proficient) – Question 02

What is 60% of 30?

A 1.8
B 18
C 180
D 1800

Grade 6: Mathematics

Number Sense - Ratios, Proportions, Percentages, and Negative Fractions (Performance Level: Proficient) – Question 03

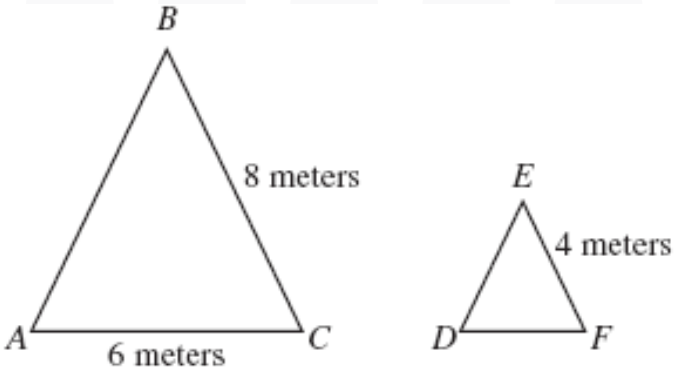
A company makes 5 blue cars for every 3 white cars it makes. If the company makes 15 white cars in one day, how many blue cars will it make?

A 9
B 13
C 17
D 25

Grade 6: Mathematics

Number Sense - Ratios, Proportions, Percentages, and Negative Fractions (Performance Level: Proficient) – Question 04

ΔABC is similar to ΔDEF. What is the length of $\overline{DF}$?

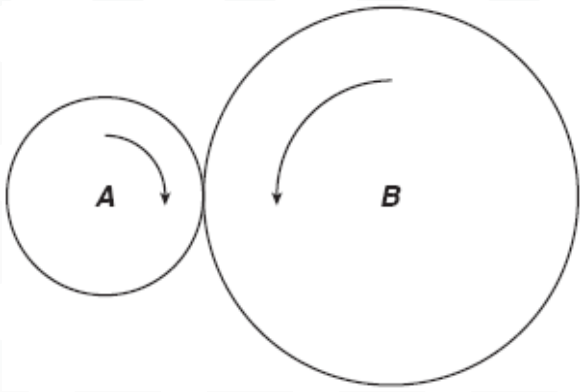


A 2 meters
B 3 meters
C 5 meters
D 10 meters

Grade 6: Mathematics

Number Sense - Ratios, Proportions, Percentages, and Negative Fractions (Performance Level: Proficient) – Question 05

When wheel B turns 2 revolutions, wheel A turns 5 revolutions. When wheel A turns 40 revolutions, how many revolutions does wheel B turn?



A 4
B 16
C 80
D 100

Grade 6: Mathematics

Number Sense - Ratios, Proportions, Percentages, and Negative Fractions (Performance Level: Below Basic) – Question 01

A certain map uses a scale of 1 inch equals 25 miles. How many miles are represented by 5 inches on this map?

A 5
B 25
C 50
D 125

Grade 6: Mathematics

Statistics, Data Analysis, and Probability (Performance Level: Advanced) – Question 01

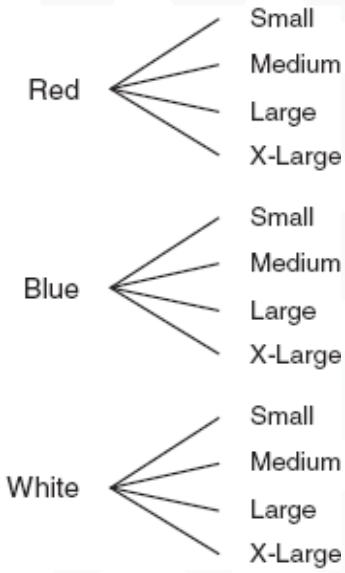
Celia has a large container in which four different kinds of coins are thoroughly mixed. She wants to take a sample of her coins to estimate which kind of coin she has the most. Which of the following methods is the best way for her to select a sample?

A taking one coin from the container
B taking coins until she has one of every kind
C taking ten coins of each type from the container
D taking thirty coins out of the container without looking

Grade 6: Mathematics

Statistics, Data Analysis, and Probability (Performance Level: Advanced) – Question 02

A store is selling USA Spirit T-shirts. The shirts are available in red, blue, and white. Shirts of each color are available in sizes small, medium, large, and extra large.



Aimee will randomly select one shirt from a shelf. If the shelf contains equal numbers of shirts in each color and size combination, what is the probability that Aimee will select a large shirt?

A $\frac{1}{12}$

B $\frac{1}{4}$

C $\frac{1}{3}$

D $\frac{11}{12}$

Grade 6: Mathematics

Statistics, Data Analysis, and Probability (Performance Level: Advanced) – Question 03

Mason has 10 black, 12 white, and 3 brown pairs of socks in one drawer. What is the probability that, without looking, Mason will pick a brown pair of socks from the drawer?

A 4%
B 12%
C 14%
D $33\frac{1}{3}\%$

Grade 6: Mathematics

Statistics, Data Analysis, and Probability (Performance Level: Advanced) – Question 04

The table shows how many T-shirts of each color Paul has in his closet.

Color	Number of Shirts
Green	3
Red	4
White	5
Blue	8
Total	20

If Paul chooses a T-shirt without looking, what is the probability that it will be blue?

A 4%
B 8%
C 40%
D 60%

Grade 6: Mathematics

Statistics, Data Analysis, and Probability (Performance Level: Proficient) – Question 01

Abe found the mean and median of this list of numbers.

1, 3, 3

If the number 6 were added to the list, then

A the mean would increase.
B the mean would decrease.
C the median would increase.
D the median would decrease.

Grade 6: Mathematics

Statistics, Data Analysis, and Probability (Performance Level: Proficient) – Question 02

Wendy wants to take a survey to determine which flavor of ice cream is the most popular at her school. Which of the following methods is the best way for her to choose a random sample of the students at her school?

A selecting ten students from each homeroom
B selecting members of the girls' softball team
C selecting members of the boys' basketball team
D selecting students who like her favorite flavor of ice cream

Grade 6: Mathematics

Statistics, Data Analysis, and Probability (Performance Level: Proficient) – Question 03

Emil wants to find out the most popular football team at a game between the home team and the visiting team. Which of the following methods will give him the *most* accurate results?

A surveying the cheerleaders for the home team
B surveying people wearing hats for the visiting team
C surveying a group of people standing in line for tickets
D surveying people who do not live in the home team's city

Grade 6: Mathematics

Statistics, Data Analysis, and Probability (Performance Level: Proficient) – Question 04

The table shows the annual profit for five companies.

2003 Profits

Company	Profit
I	$300,000
II	$275,000
III	$250,000
IV	$325,000
V	$300,000

Which statement is valid about the annual profits of these five companies?

A Companies II and V made the same profit.
B No company made less than $275,000 profit.
C No company made more than $300,000 profit.
D Company IV made $75,000 more profit than Company III.

Grade 6: Mathematics

Statistics, Data Analysis, and Probability (Performance Level: Proficient) – Question 05

In her pocket, Kira has 2 red marbles, 2 green marbles, and 2 blue marbles that are all the same size. If Kira picks one marble out of her pocket without looking, what is the probability that it will be either red or green?

A $\frac{1}{6}$

B $\frac{1}{3}$

C $\frac{1}{2}$

D $\frac{2}{3}$

Grade 6: Mathematics

Statistics, Data Analysis, and Probability (Performance Level: Basic) – Question 01

Ms. Hatley is going to choose one person from each of the two lists below to represent the class in student council.
Which set shows all the possible choices of two people?

A {(Ann, Carlos), (Ann, Lisa)}
B {(Ann, Dave), (Ann, Mia)}
C {(Ann, Dave), (Carlos, Mia), (Lisa, Dave), (Lisa, Mia)}
D {(Ann, Dave), (Ann, Mia), (Carlos, Dave), (Carlos, Mia), (Lisa, Dave), (Lisa, Mia)}