2021-2022

NSCAS NEBRASKA STUDENT-CENTERED ASSESSMENT SYSTEM

Grade 5 - Item Type Sampler
Mathematics

Directions:

On the following pages of your booklet are questions for the Grade 5 *Nebraska Student-Centered Assessment System Mathematics (NSCAS-M)* Item Type Sampler.

Read these directions carefully before beginning this item type sampler.

This item type sampler will include several different types of questions. Multiple choice questions will ask you to select an answer from among four choices. Multiple select questions will ask you to select multiple correct answers from among five or more choices. For some questions, there may be two parts, Part A and Part B, where each part has a multiple choice or multiple select question. These questions will be found in your item type sampler.

For all questions:

- Read each question carefully and choose the best answer.
- You may use scratch paper to solve the problems.
- The Mathematics Reference Sheet is provided in the back of the Mathematics section. You may refer to this page at any time during the sampler.
- You may not use a calculator on this sampler.
- Be sure to answer ALL the questions.

When you come to the word STOP, you have finished the Grade 5 NSCAS Growth Mathematics Item Type Sampler.

STOP.

NSCAS NEBRASKA STUDENT-CENTERED ASSESSMENT SYSTEM

Mathematics Reference Sheet

Shape	Area	Circumference
Circle	$A = \pi r^2$	$C = \pi d = 2\pi r$
Triangle	$A = \frac{1}{2}bh$	**Perimeter**
Rectangle	$A = l \times w$	$P = 2l + 2w = 2(l + w)$
Square	$A = s \times s$	$P = s + s + s + s$
Trapezoid	$A = \frac{1}{2}h(b_1 + b_2)$	
Parallelogram	$A = bh$	

Key	
b = base	l = length
h = height	w = width
B = area of base	s = side length
H = height of triangular prism	
s_1, s_2, s_3 are the lengths of each side of the triangular base	
d = diameter	r = radius
Use 3.14 for π.	

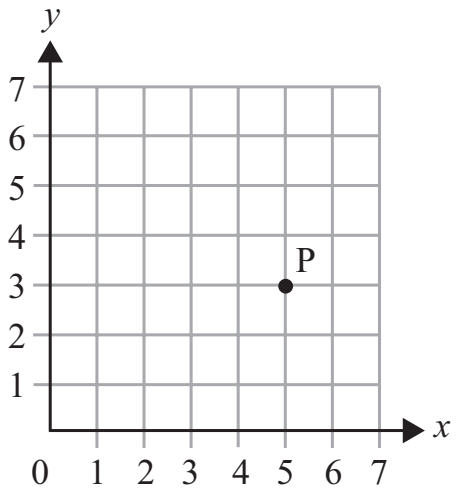
3 – Dimensional Shape	Volume	Surface Area
Rectangular Prism	$V = lwh = Bh$	$SA = 2lw + 2lh + 2wh = 2B + 2lh + 2wh$
Triangular Prism	$V = \frac{1}{2}lwh = Bh$	$SA = bh + (s_1 + s_2 + s_3)H = 2B + (s_1 + s_2 + s_3)H$
Cone	$V = \frac{1}{3}\pi r^2 h$	
Cylinder	$V = \pi r^2 h$	
Sphere	$V = \frac{4}{3}\pi r^3$	

Percent Change
$\%\ \text{change} = \frac{\text{difference in amount}}{\text{original amount}}$

Pythagorean Theorem
$c^2 = a^2 + b^2$

Standard Units	Metric Units
Conversions – Length	
1 foot (ft) = 12 inches (in.)	1 centimeter (cm) = 10 millimeters (mm)
1 yard (yd) = 3 feet (ft) = 36 inches (in.)	1 meter (m) = 100 centimeters (cm)
1 mile (mi) = 1,760 yards (yd) = 5,280 feet (ft)	1 meter (m) = 1,000 millimeters (mm)
	1 kilometer (km) = 1,000 meters (m)
Conversions – Volume	
1 cup = 8 fluid ounces (fl oz)	1 liter (l) = 1,000 milliliters (ml)
1 pint (pt) = 2 cups	1 liter (l) = 1,000 cubic centimeters (cu. cm)
1 quart (qt) = 2 pints (pt)	
1 gallon (gal.) = 4 quarts (qt)	
Conversions – Weight/Mass	
1 pound (lb) = 16 ounces (oz)	1 gram (g) = 1,000 milligrams (mg)
1 ton = 2,000 pounds (lb)	1 kilogram (kg) = 1,000 grams (g)

1. **Use the coordinate grid below to answer the question.**



What are the coordinates of point P?

A. $(3, 5)$

B. $(5, 3)$

C. $(5, 4)$

D. $(6, 3)$

2. **Use the rule to answer the question.**

$$y = 4x$$

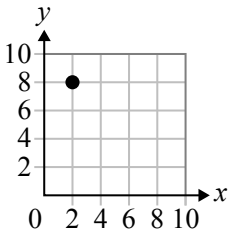
Which points are formed by the rule? Select **three** options.

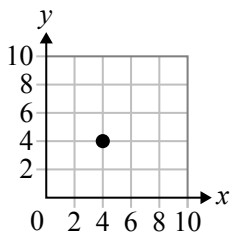
A. $(0, 0)$

B. $(3, 4)$

C. $(8, 2)$

D. $(5, 20)$

E. 

F. 

Go on to the next page.

3. What is $\frac{1}{4} \div 3$?

   A. $\frac{1}{12}$

   B. $\frac{3}{4}$

   C. $\frac{4}{3}$

   D. 12

4. What is 9,887 rounded to the nearest thousand?

   A. 9,000

   B. 9,800

   C. 9,900

   D. 10,000

5. A recipe calls for $\frac{1}{4}$ pound of nuts, $\frac{1}{8}$ pound of candy pieces, and $\frac{1}{3}$ pound of dried fruit. What is the total weight, in pounds, of nuts, candy pieces, and dried fruit the recipe calls for?

   A. $\frac{1}{15}$ pound

   B. $\frac{3}{15}$ pound

   C. $\frac{17}{24}$ pound

   D. $\frac{17}{8}$ pounds

Go on to the next page.

6. Students gathered data about the cars in the teacher parking lot at the school. They counted the number of cars of various colors and recorded the information in a table.

Cars in Teacher Parking Lot

Color	Number of Cars
Black	5
Gray	5
Red	4
Tan	2
White	8
Other	3

Part A

Which question can be answered using the data shown in the table?

A. How many students like red cars?

B. Which car color is the most common?

C. Which car color shows the most dirt?

D. What is the favorite car color among women?

Part B

The students want to know how many cars of each color in the teacher parking lot were made after a certain year. What additional information do the students need to gather?

A. the year each car was bought

B. the year each car was made

C. the number of years the teachers have taught at the school

D. the number of years the teachers have been driving the car

Go on to the next page.

7. Which option shows $\frac{3}{4}$ as a decimal?

   A. 0.25
   B. 0.34
   C. 0.43
   D. 0.75

8. When evaluating the expression $4 + 6 \div 2 \times 5 - 3$, which operation is performed first?

   A. $4 + 6$
   B. $6 \div 2$
   C. 2×5
   D. $5 - 3$

9. What is $4{,}376 \div 36$?

   A. 121
   B. $121\ \text{R}20$
   C. 122
   D. $122\ \text{R}16$

Go on to the next page.

10. A student measured the length of a carpet to be 72 inches long. What is the length of the carpet in yards?

A. 2 yards

B. 6 yards

C. 216 yards

D. 864 yards

11. What is $[(16 - 6) \div 2] + (3 \times 3)$?

A. 14

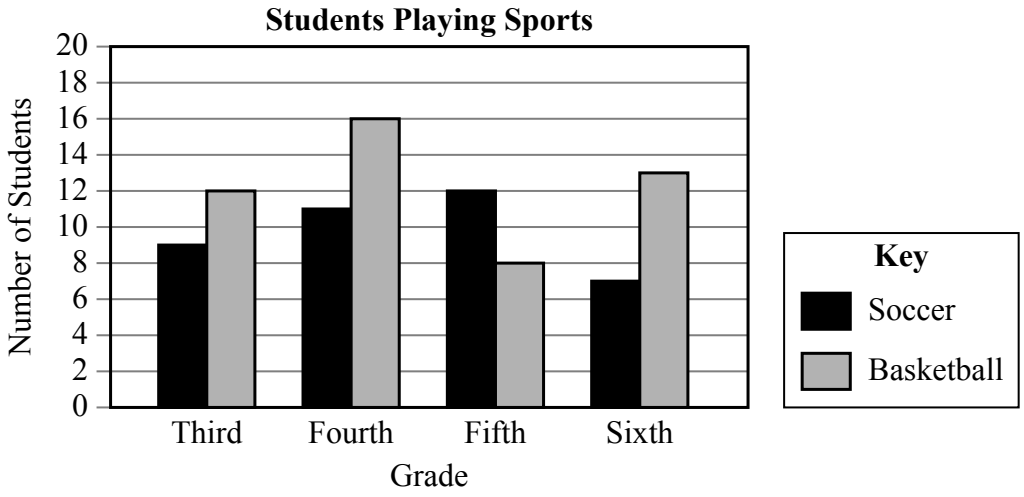
B. 22

C. 24

D. 48

Go on to the next page.

12. **Use the graph to answer the question.**



Which statement is correct?

A. More total students play soccer than basketball.

B. Four more third-grade students play basketball than play soccer.

C. Twice as many sixth-grade students play basketball than play soccer.

D. Twice as many fourth-grade students play basketball than fifth-grade students.

13. What is the standard form of $90{,}000 + 800 + 50 + 2 + 0.1 + 0.007$?

A. $90{,}852.107$

B. $90{,}852.017$

C. $98{,}052.107$

D. $98{,}052.017$

Go on to the next page.

14. **Use the figure to answer the question.**

Which words or phrases BEST describe the figure? Select **three**.

A. square

B. rectangle

C. trapezoid

D. The figure has exactly four angles.

E. The figure has four sides of equal length.

F. The figure has exactly one set of parallel sides.

G. The figure has exactly two sets of parallel sides

15. Which set of steps shows the sum of $\frac{2}{3} + \frac{3}{4}$ in simplest form?

A. $\frac{2}{3} + \frac{3}{4} \rightarrow \frac{8}{12} + \frac{9}{12} \rightarrow \frac{17}{12} \rightarrow 1\frac{5}{12}$

B. $\frac{2}{3} + \frac{3}{4} \rightarrow \frac{5}{7} + \frac{5}{7} \rightarrow \frac{10}{7} \rightarrow 1\frac{3}{7}$

C. $\frac{2}{3} + \frac{3}{4} \rightarrow \frac{6}{12} + \frac{12}{12} \rightarrow \frac{18}{12} \rightarrow 1\frac{1}{2}$

D. $\frac{2}{3} + \frac{3}{4} \rightarrow \frac{8}{12} + \frac{9}{12} \rightarrow \frac{17}{12} \rightarrow 1\frac{7}{12}$

Go on to the next page.

16. Which number does 10^5 represent?

A. 50

B. 500

C. 10,000

D. 100,000

17. Evaluate.

$$32 \div 4 \times (20 - 16)$$

A. 2

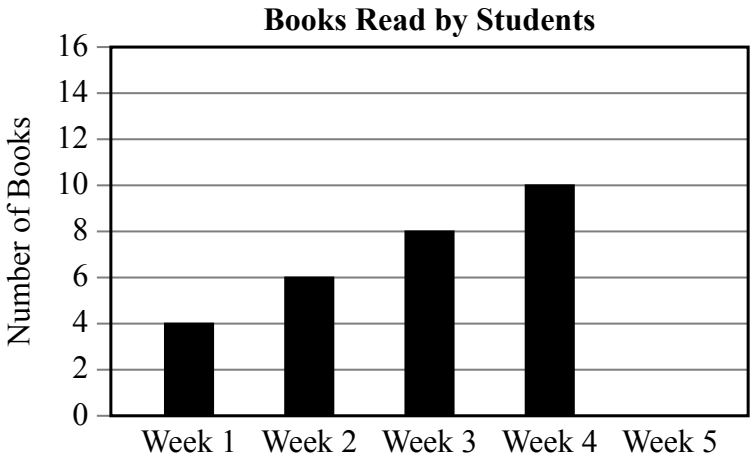
B. 16

C. 32

D. 144

Go on to the next page.

18. **Use the graph to answer the question.**



Based on the graph, what is the BEST estimate for the number of books that will be read during Week 5?

A. 8 books

B. 10 books

C. 12 books

D. 14 books

Go on to the next page.

19. **Part A**

What is the value of $6{,}200 \times 10^4$?

A. 620

B. 62,000

C. 620,000

D. 62,000,000

Part B

What is the value of $6{,}200 \div 10^2$?

A. 0.0062

B. 0.62

C. 62

D. 620,000

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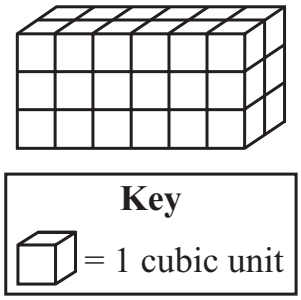
20. **Use the figure below to answer the question.**



What is the volume of the figure?

A. 11 units^3

B. 27 units^3

C. 34 units^3

D. 36 units^3

STOP.

NSCAS Growth Grade 5
Item Type Sampler Answer Key
Mathematics

Sequence	Key	Points
1.	**B**	**1**
2.	**A, D, E**	**2**
	Any two of the three answers correct	**1**
3.	**A**	**1**
4.	**D**	**1**
5.	**C**	**1**
6.	Part A: **B** Part B: **B**	**2**
	Part A or Part B	**1**
7.	**D**	**1**
8.	**B**	**1**
9.	**B**	**1**
10.	**A**	**1**
11.	**A**	**1**
12.	**D**	**1**
13.	**A**	**1**
14.	**C, D, F**	**2**
	Any two of the three answers correct	**1**
15.	**A**	**1**
16.	**D**	**1**
17.	**C**	**1**
18.	**C**	**1**
19.	Part A: **D** Part B: **C**	**2**
	Part A or Part B	**1**
20.	**D**	**1**