2021-2022

NSCAS NEBRASKA STUDENT-CENTERED ASSESSMENT SYSTEM

Grade 4 - Item Type Sampler
Mathematics

Directions:

On the following pages of your booklet are questions for the Grade 4 *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 4 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. What is the standard form of forty-five and nine tenths?

   A. 45.009

   B. 45.09

   C. 45.9

   D. 45.910

2. Oscar has 9 pumpkins. Libby has p fewer pumpkins than Oscar. Which expression represents the number of pumpkins Libby has?

   A. $9 + p$

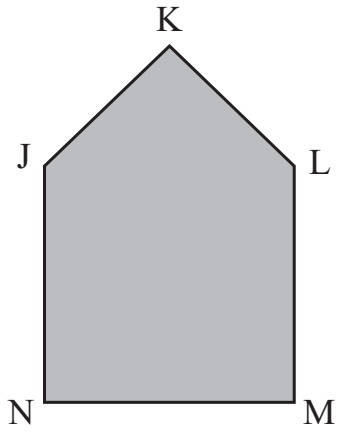
   B. $9 - p$

   C. $p + 9$

   D. $p - 9$

Go on to the next page.

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



Which line segment is perpendicular to line segment JN?

A. line segment JK

B. line segment KL

C. line segment LM

D. line segment MN

4. What is $4\frac{3}{10} + 8\frac{5}{10}$?

A. $12\frac{8}{100}$

B. $12\frac{15}{100}$

C. $12\frac{8}{20}$

D. $12\frac{8}{10}$

Go on to the next page.

5. Which **three** numbers have a remainder when divided by 3?

   A. 547

   B. 846

   C. 1,254

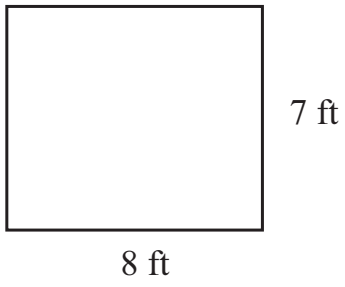
   D. 3,766

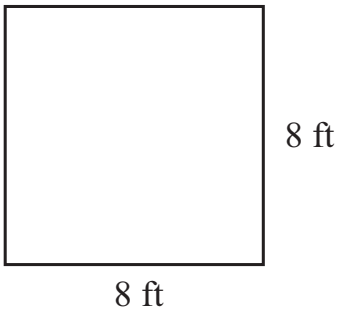
   E. 4,256

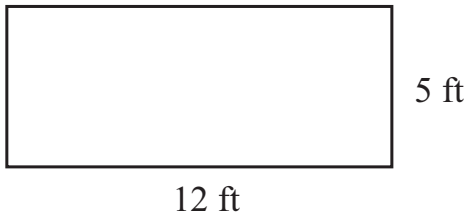
   F. 8,916

6. Which figure has the greatest area?

A. 

B. 

C. 

D. 

Go on to the next page.

7. Which fraction is equivalent to the decimal 0.43?

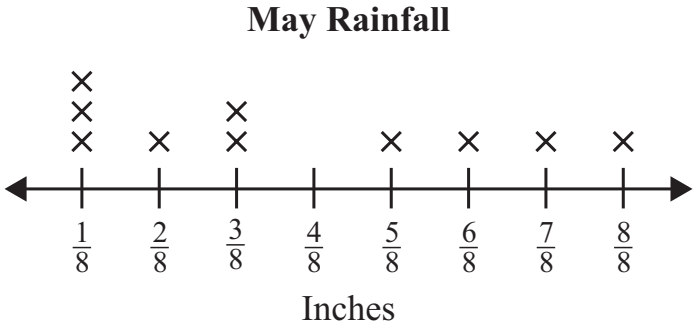
A. $\frac{43}{100}$

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

C. $4\frac{3}{100}$

D. $4\frac{3}{10}$

8. **Use the line plot below to answer the question.**



The line plot shows the amount of rainfall, in inches, for 10 different days in May. What was the total amount of rainfall in May?

A. 4 inches

B. $3\frac{5}{8}$ inches

C. $4\frac{5}{8}$ inches

D. 7 inches

Go on to the next page.

9. A school is ordering shelves for a teacher. The teacher has 17 math books, 18 science books, and 19 reading books. Each shelf holds 8 books.

Part A

How many shelves does the teacher need?

A. 5 shelves

B. 6 shelves

C. 7 shelves

D. 8 shelves

Part B

The teacher puts 8 books on each shelf except for the last shelf. How many books are on the last shelf?

A. 7 books

B. 6 books

C. 4 books

D. 0 books

10. Which set is ordered from least to greatest?

A. $\frac{8}{9}, \frac{1}{2}, \frac{3}{4}, \frac{1}{10}$

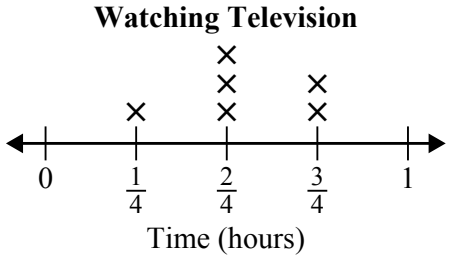
B. $\frac{1}{10}, \frac{3}{4}, \frac{1}{2}, \frac{8}{9}$

C. $\frac{1}{10}, \frac{1}{2}, \frac{3}{4}, \frac{8}{9}$

D. $\frac{8}{9}, \frac{1}{10}, \frac{3}{4}, \frac{1}{2}$

Go on to the next page.

11. Manuel is allowed to watch 5 hours of television each week. The time Manuel spent watching television for six days is shown in the line plot.



How many hours of television can Manuel watch on the last day of this week?

A. $1\frac{3}{4}$ hours

B. $2\frac{3}{4}$ hours

C. $3\frac{1}{4}$ hours

D. $3\frac{1}{2}$ hours

12. Which number is a multiple of 4?

A. 30

B. 38

C. 42

D. 48

Go on to the next page.

13. What is the value of y in the number sentence?

$$y - 9 = 7$$

A. 2

B. 16

C. 17

D. 63

14. Which shapes ALWAYS have two pairs of parallel sides? Select **three** shapes.

A. square

B. rhombus

C. trapezoid

D. rectangle

E. quadrilateral

15. Which comparison is true?

A. $4.09 > 4.50$

B. $2.31 > 2.18$

C. $5.23 < 5.14$

D. $6.80 < 6.29$

Go on to the next page.

16. The table shows how far Mark rode his bike each day for three days.

Bike Riding

Day	Distance (miles)
Monday	$\frac{7}{10}$
Tuesday	$\frac{2}{10}$
Wednesday	$\frac{4}{10}$

What is the total distance Mark rode his bike?

A. $\frac{5}{10}$ of a mile

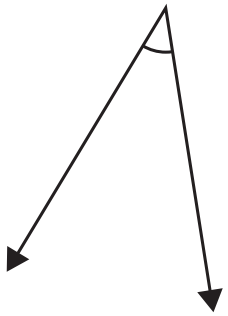
B. $\frac{9}{10}$ of a mile

C. $1\frac{3}{10}$ miles

D. $1\frac{13}{10}$ miles

Go on to the next page.

17. **Use the protractor tool to measure the angle below.**



What is the measure of the angle?

A. 35°

B. 40°

C. 45°

D. 50°

Go on to the next page.

18. **Use the table to answer the questions.**

Day of Week	Hours of Exercise
Sunday	$\frac{2}{4}$
Monday	$\frac{3}{4}$
Tuesday	$\frac{3}{4}$
Wednesday	$\frac{1}{4}$
Thursday	$\frac{2}{4}$
Friday	$\frac{2}{4}$
Saturday	$\frac{4}{4}$

Part A

What is the BEST scale for a line plot of the data in the table?

A. $\frac{1}{4}$

B. $\frac{1}{2}$

C. 1

D. 4

Part B

How many Xs should be above $\frac{2}{4}$ on the line plot?

A. 1

B. 2

C. 3

D. 4

Go on to the next page.

19. Jordan wants to buy doughnuts for his friends. There are 12 doughnuts in each box. Jordan needs 48 doughnuts total.

    Jordan uses the equation $12n = 48$. What does n represent in this equation?

    A. the number of boxes

    B. the cost of the doughnuts

    C. the number of doughnuts in all

    D. the number of doughnuts in each box

20. What is the product of 18×24 ?

    A. 108

    B. 128

    C. 432

    D. 632

STOP.

NSCAS Growth Grade 4
Item Type Sampler Answer Key
Mathematics

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