

# Nebraska NSCAS Grade 4 Math Practice

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# NSCAS NEBRASKA STUDENT-CENTERED ASSESSMENT SYSTEM

## Mathematics Reference Sheet

Shape	Area	Circumference	Key
Circle	$A = \pi r^2$	$C = \pi d = 2\pi r$	$b$ = base $l$ = length
Triangle	$A = \frac{1}{2}bh$	<b>Perimeter</b>	$h$ = height $w$ = width
Rectangle	$A = l \times w$	$P = 2l + 2w = 2(l + w)$	$B$ = area of base $s$ = side length
Square	$A = s \times s$	$P = s + s + s + s$	$H$ = height of triangular prism
Trapezoid	$A = \frac{1}{2}h(b_1 + b_2)$		$s_1, s_2, s_3$ are the lengths of each side of the triangular base
Parallelogram	$A = bh$		$d$ = diameter $r$ = radius
			Use 3.14 for $\pi$ .

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	$V = \frac{1}{3}\pi r^2h$	<table><tr><th>Percent Change</th></tr><tr><td><math>\% \text{ change} = \frac{\text{difference in amount}}{\text{original amount}}</math></td></tr><tr><th>Pythagorean Theorem</th></tr><tr><td><math>c^2 = a^2 + b^2</math></td></tr></table>	Percent Change	$\% \text{ change} = \frac{\text{difference in amount}}{\text{original amount}}$	Pythagorean Theorem	$c^2 = a^2 + b^2$
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Pythagorean Theorem						
$c^2 = a^2 + b^2$						
Cylinder	$V = \pi r^2h$					
Sphere	$V = \frac{4}{3}\pi r^3$					

Standard Units	Metric Units
<b>Conversions – Length</b>	
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)
<b>Conversions – Volume</b>	
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)	
<b>Conversions – Weight/Mass</b>	
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)

**2021-2022**



**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.

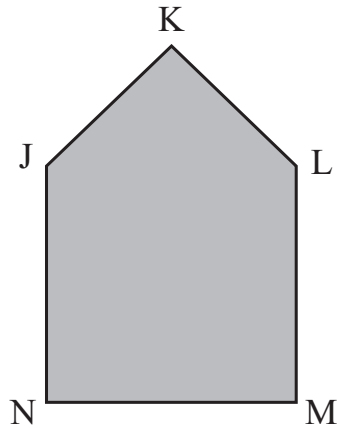
When you come to the word STOP, you have finished the Grade 4 NSCAS Growth Mathematics Item Type Sampler.

## MATHEMATICS - ITEM TYPE SAMPLER

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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.  **$p - 9$**

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

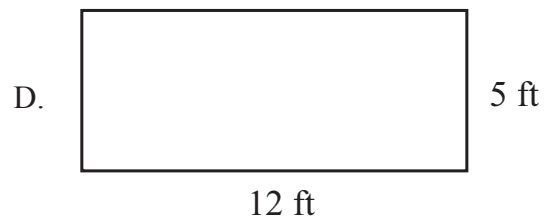
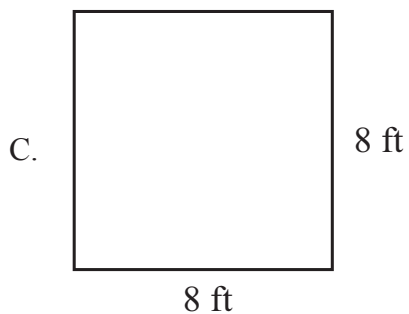
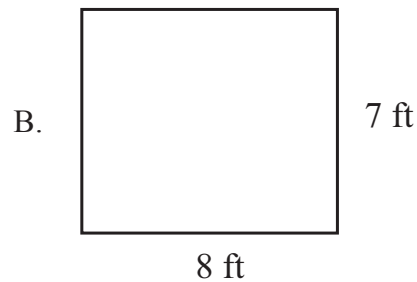
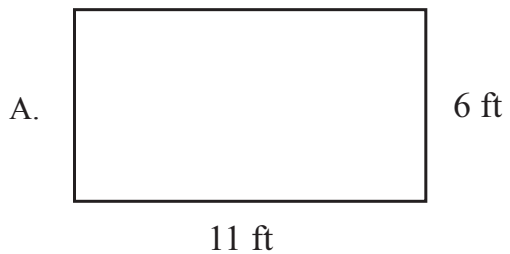
## MATHEMATICS - ITEM TYPE SAMPLER

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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

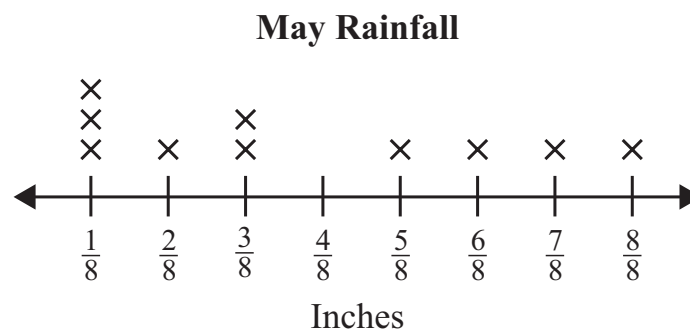
6. Which figure has the greatest area?



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



## MATHEMATICS - ITEM TYPE SAMPLER

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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**

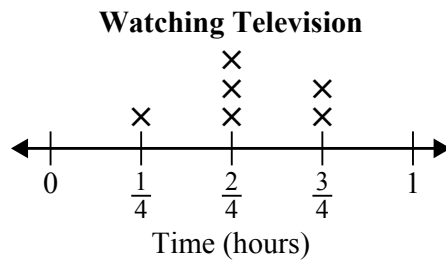
The teacher puts 8 books on each shelf except for the last shelf. How many books are on the last shelf?

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

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

## MATHEMATICS - ITEM TYPE SAMPLER

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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.  $6.80 < 6.29$

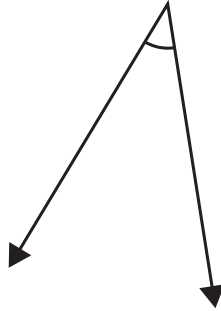
16. The table shows how far Mark rode his bike each day for three days.

<b>Bike Riding</b>	
<b>Day</b>	<b>Distance (miles)</b>
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

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



What is the measure of the angle?

- A.  $35^\circ$
- B.  $40^\circ$
- C.  $45^\circ$
- D.  $50^\circ$

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

## MATHEMATICS - ITEM TYPE SAMPLER

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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  **$18 \times 24$**  ?

- A. **108**
- B. **128**
- C. **432**
- D. **632**

**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