



# Upper Academy

## 8<sup>th</sup> Grade Math

### Summer 2025 Home Learning

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We strongly recommend your child works on the Summer Home Learning assignment. It will help your child to get a general idea of the content to be covered throughout the next school year.

**Directions to students:** Please complete the math problems on the following pages the best you can and show and turn in your work on a separate sheet of paper.

If some questions are not familiar to you, use Khan Academy, IXL videos related to each topic, or “Mathantics” videos.

# Mathematics Summer Learning (show work on separate paper)

**Select the best answer.**

- Which algebraic expression represents “twice the sum of  $y$  and 9”?  
A  $2 + 9y$  C  $2(y + 9)$   
B  $2(9y)$  D  $2 + (y + 9)$
- What is  $12xy$  evaluated for  $x = 5$  and  $y = 2$ ?  
F 19 H 120  
G 22 I 210
- Winnie stuffs 120 envelopes in 15 minutes. How many envelopes can she stuff per minute?  
A 8 envelopes per minute  
B 9 envelopes per minute  
C 480 envelopes per minute  
D 1800 envelopes per minute
- What is  $4(x^2 - 3x) + 12x^2 + x$  simplified?  
F  $4x^2 - 3x$  H  $16x^2 - 11x$   
G  $13x^2 - 2x$  I  $16x^2 - 12x$
- Which pair of expressions is equivalent?  
A  $7(1 - k)$  and  $7 - k$   
B  $7(1 - k)$  and  $1 - 7k$   
C  $7(1 - k)$  and  $7 - k$   
D  $7(1 - k)$  and  $7 - 7k$
- Which is equivalent to  $\frac{4^{-5}}{4^{-3}}$ ?  
F  $4^{-2}$  H  $2^{-4}$   
G 42 I  $\frac{1}{4^{-2}}$

7. Which is 34,000 in scientific notation?

A  $3.4 \times 10^{-4}$       C  $3.4 \times 10^3$   
B  $3.4 \times 10^{-3}$       D  $3.4 \times 10^4$

8. Which is  $6\frac{3}{4}\left(\frac{2}{9}\right)$  simplified?

$$\begin{array}{cc} \text{F} & \frac{2}{3} \\ \text{G} & \frac{3}{2} \end{array} \qquad \begin{array}{cc} \text{H} & 5\frac{5}{6} \\ \text{I} & 6\frac{1}{6} \end{array}$$

9. What is  $\frac{3}{4} \div \frac{7}{8}$  simplified?

A	$\frac{6}{7}$	C	$\frac{21}{40}$
B	$\frac{7}{6}$	D	$\frac{40}{21}$

10. What is  $3\sqrt{18} + 2\sqrt{50}$  simplified?

F	$19\sqrt{2}$	H	$77\sqrt{2}$
G	$39\sqrt{2}$	I	$90\sqrt{2}$

11. Which is  $\left| -\frac{3}{8} + \frac{2}{5} \right| - \left| -\frac{1}{4} \right|$  simplified?

A	$-\frac{11}{40}$	C	$\frac{9}{40}$
B	$-\frac{9}{40}$	D	$\frac{11}{40}$

**GRADE**
**8**

# **Mathematics Summer Learning (show work on separate paper)**

12. What is the value of  $x$  in the equation

$$x - \frac{4}{9} = \frac{2}{11}?$$

F  $x = -\frac{62}{99}$

H  $x = \frac{26}{99}$

G  $x = -\frac{26}{99}$

I  $x = \frac{62}{99}$

13. Which is the range of the relation below?

<b>x</b>	0	2	4	6	8
<b>y</b>	-2	-1	0	1	2

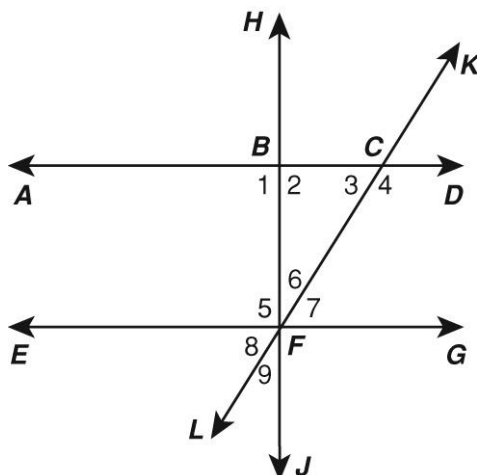
A 0, 2, 4, 6, 8

B -2, -1, 0, 1, 2

C -2, -1, 0, 1, 2, 4, 6, 8

D 0, 2

Use the figure below for 14 and 15.



14. Line AD is parallel to line EG. If  $m\angle 3$  is  $70^\circ$ , what is  $m\angle 4$ ?

F  $10^\circ$

H  $110^\circ$

G  $20^\circ$

I  $290^\circ$

15. Which angle is congruent to  $\angle 3$ ?

A  $\angle 2$

C  $\angle 6$

B  $\angle 4$

D  $\angle 8$

16. What is the sum of the interior angle measures of a pentagon?

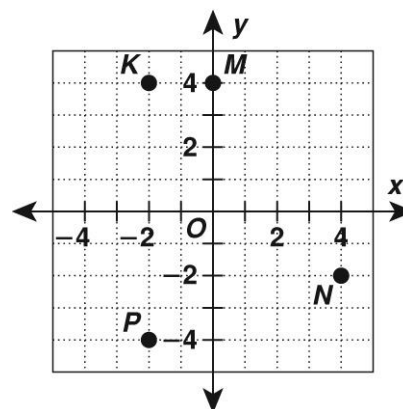
F  $900^\circ$

H  $360^\circ$

G  $540^\circ$

I  $180^\circ$

17. What are the coordinates of point K?



A (-2, 4)

C (2, -4)

B (-2, -4)

D (2, 4)

18. The legs of a right triangle are 75 and 100. What is the length of the hypotenuse?

F  $5\sqrt{5}$

H 250

G 125

I 625

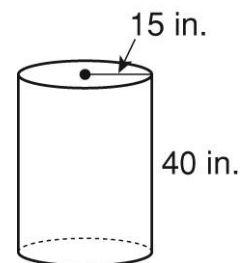
19. What is the volume of the cylinder? Use 3.14 for  $\pi$ .

A 1200 cubic inches

B 1884 cubic inches

C 3768 cubic inches

D 28,260 cubic inches



20. Which ordered pair is a solution to  $y = 7x - 3$ ?

F (-2, -17)

H (2, 7)

G (-2, 11)

I (2, 14)

GRADE

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**Mathematics Summer Learning (show work on separate paper)**

21. What is 40 kilometers per hour in meters per hour?
- A 0.040 meters per hour  
B 40 meters per hour  
C 4000 meters per hour  
D 40,000 meters per hour
22. What is the missing value in the proportion  $\frac{3}{15} = \frac{2}{n}$ ?
- F  $n = 5$                       H  $n = 12$   
G  $n = 10$                       I  $n = 20$
23. A length on a map is 7.5 inches. The scale is 1 inch:5 miles. What is the actual distance?
- A 1.5 miles                      C 12.5 miles  
B 2.5 miles                      D 37.5 miles
24. About 60% of the normal human being's body weight is composed of water. How much of a 125 pound person is water weight?
- F 72 pounds                      H 76 pounds  
G 75 pounds                      I 80 pounds
25. 0.2% of what number is 12?
- A 6000                              C 2.4  
B 60                                  D 0.024
26. Last month, Rhonda earned \$3200. Of that amount, she spent \$1350 on rent. What percent of her income went to rent, to the nearest tenth of a percent?
- F 13.5%                              H 42.2%  
G 32.0%                              I 57.8%

27. What are the first and third quartiles for the following data set?

**12, 15, 18, 16, 14, 9, 12, 21**

- A 9 and 21                      C 12 and 17  
B 12 and 16                      D 15 and 17

28. What is the smallest value in the stem-and-leaf plot below?

Stem	Leaves
0	2 3 3 7
1	1 3 7 7 8
2	0 0 7
3	4 4 5 5

**Key: 3 / 5 means 35**

- F 2                                      H 35  
G 20                                      I 2337

29. Which is the solution to  $-\frac{x}{2} \leq -4$ ?

- A  $x \leq -8$                       C  $x \leq 8$   
B  $x \geq -8$                       D  $x \geq 8$

30. What is the solution to  $5z + 16 = 34 - z$ ?

- F 2                                      H 4.5  
G 3                                      I 6

31. Which inequality is represented by this graph?



- A  $\frac{x}{5} - 6 > -4$                       C  $\frac{x}{5} - 6 < -4$   
B  $\frac{x}{5} - 5 > 45$                       D  $\frac{x}{5} + 5 > -45$

**Mathematics Summer Learning (show work on separate paper)**32. What is  $(x - 8)(x + 5)$ ?

F  $x^2 - 3$

G  $x^2 - 3x - 40$

H  $x^2 + 3x - 40$

I  $x^2 - 13x - 40$

33. What is the solution to the system of equations below?

$y = 3x + 1$

$5x - y = 3$

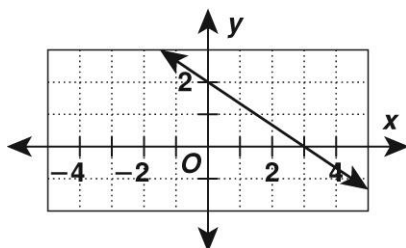
A (2, 3)

C (1, 2)

B (0, 1)

D (2, 7)

34. Which is the rule for the linear function graphed below?



F  $f(x) = -\frac{2}{3}x + 2$

G  $f(x) = -x + 2$

H  $f(x) = -\frac{3}{2}x + 3$

I  $f(x) = x - 2$

35. What is the point-slope form of the equation for the line with a slope of  $-2$  that passes through  $(1, 4)$ ?

A  $y + 1 = -2(x + 4)$

B  $y - 1 = -2(x - 4)$

C  $y + 4 = -2(x + 1)$

D  $y - 4 = -2(x - 1)$

36. Given that  $y$  varies directly with  $x$ , what is the equation of direct variation if  $y$  is 3 when  $x$  is 7?

F  $y = \frac{3}{7}x$

H  $y = 3x + 7$

G  $y = \frac{7}{3}x$

I  $y = \frac{3}{7}x$

37. What is  $(4n + 3n^2 + 2) - (n - 6n^2 + 1)$  simplified?

A  $-3n^2 + 3n - 2$

C  $9n^2 + 3n + 2$

B  $3n^2 + 3n + 2$

D  $9n^2 + 3n + 1$

38. Which equation represents the data in the table?

$x$	0	1	2	3	4
$y$	-4	-2	0	2	4

F  $y = x - 4$

H  $y = 2x - 4$

G  $y = 2x - 2$

I  $y = 4x - 4$

39. In a loaf of bread, does the number of slices eaten and the number of slices remaining in the loaf have a positive, a negative, or no correlation? Explain.

A Negative: The more slices eaten, the fewer slices that remain.

B Negative: The more slices eaten, the more slices that remain.

C Positive: The more slices eaten, the fewer slices that remain.

D Positive: The more slices eaten, the more slices that remain.

40. What is  $f(3)$  for the quadratic function  $f(x) = 2x^2 + x - 12$ ?

F  $-3$

G  $3$

H  $6$

I  $9$