Name _____ Date _____ Class _____

GRADE 8

Mathematics Summer Learning

Select the best answer.

1. Which algebraic expression represents "twice the sum of y and 9"?

   A $2 + 9y$ C $2(y + 9)$

   B $2(9y)$ D $2 + (y + 9)$

2. What is $12xy$ evaluated for $x = 5$ and $y = 2$?

   F 19 H 120

   G 22 I 210

3. Winnie stuffs 120 envelops in 15 minutes. How many envelops 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

4. What is $4(x^2 - 3x) + 12x^2 + x$ simplified?

   F $4x^2 - 3x$ H $16x^2 - 11x$

   G $13x^2 - 2x$ I $16x^2 - 12x$

5. 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 $7 - 7k$

6. 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 3.4×10^{-4} C 3.4×10^{3}

   B 3.4×10^{-3} D 3.4×10^{4}

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

   F $\frac{2}{3}$ H $5\frac{5}{6}$

   G $\frac{3}{2}$ I $6\frac{1}{6}$

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 $\frac{11}{40}$

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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?

x	0	2	4	6	8
y	–2	–1	0	1	2

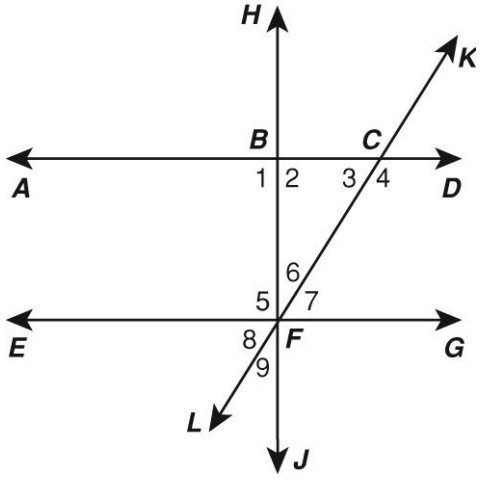
A 0, 2, 4, 6, 8

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∠3 is 70°, what is m∠4?

F 10° H 110°

G 20° I 290°

15. Which angle is congruent to ∠3?

A ∠2 C ∠6

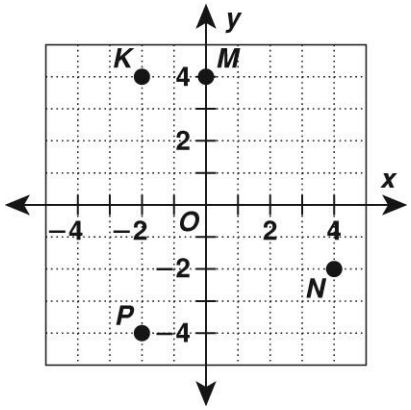
B ∠4 D ∠8

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

F 900° H 360°

G 540° I 180°

17. What are the coordinates of point K?



A (–2, 4) C (2, –4)

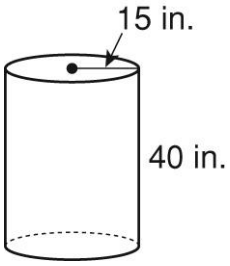
B (–2, –4) D (2, 4)

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 π.



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)

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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 $-\frac{x}{2} \le -4$?

A $x \le -8$ C $x \le 8$

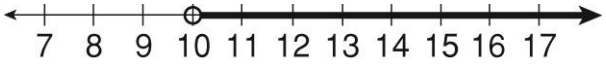
B $x \ge -8$ D $x \ge 8$

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 $\frac{x}{5} + 5 > -45$

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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?

$y = 3x + 1$

$5x - y = 3$

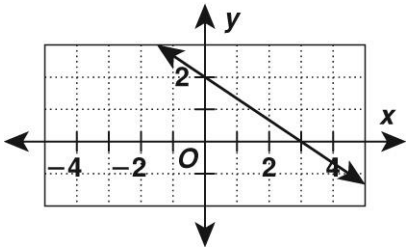
A (2, 3)

B (0, 1)

C (1, 2)

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

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

H $y = 3x + 7$

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

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

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

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

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

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 $y = x - 4$

G $y = 2x - 2$

H $y = 2x - 4$

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