Name: _____

Math Summer Work
First TEP of SY26-27

SHOW YOUR WORK

In order to receive full credit, you must show and/or explain your answer for ALL questions.

1. Evaluate the following expression:

$$-\frac{3}{4} \div \left(\frac{1}{2} - \frac{1}{8}\right)$$

2. Evaluate the following expression:

$$-5.6 \times 2.3 + (-4.15)$$

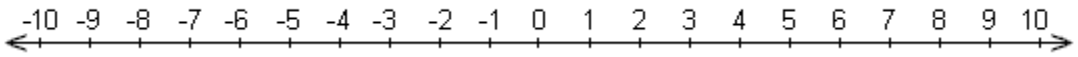
3. Evaluate the following expression:

$$3^3 - |-12 + 4| \times 2$$

4. Evaluate the following expression:

$$\frac{4^2 - (-2)^3}{5 - 7}$$

5. At dawn, the temperature in Bismarck, North Dakota, was -5°C. As the sun came up, the temperature rose by 12°C. By midnight, a cold front swept through, and the temperature dropped by 9°C. What was the temperature at midnight?



Use the number line to justify your answer.

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Math Summer Work
First TEP of SY26-27

6. What value of x will make the equation below true?

$$\frac{1}{4}(8x - 20) - 16 = 10x + 51$$

A. -4

B. 5

C. 9

D. -9

7. Which equation has no solution?

F. $x - 5(x - 4) = 2(2x + 7) + 6$

G. $5(x + 1) - 3x = 5 - 2(5 - x)$

H. $1 - 3(x + 3) = 2(3x - 4) - 9x$

J. $3(x - 4) + x = 4(3 - x)$

8. What value of x makes the inequality true?

$$3(2x - 1) - 11x \leq -3x + 5$$

A. $\{x: x \geq -4\}$

B. $\{x: x \leq -4\}$

C. $\{x: x \geq -1\}$

D. $\{x: x \leq -1\}$

9. Find the value of the expression below when $x = \frac{3}{4}$.

$$4x^2 + 8x - 5$$

F. 10

G. 4

H. $\frac{13}{4}$

J. $\frac{53}{4}$

10. Evaluate the expression below if $a = 64$, $b = 9$, and $c = 5$

$$\frac{12b - 2^c}{\sqrt[3]{a}}$$

A. 19

B. $\frac{19}{2}$

C. $\frac{49}{4}$

D. $\frac{49}{2}$

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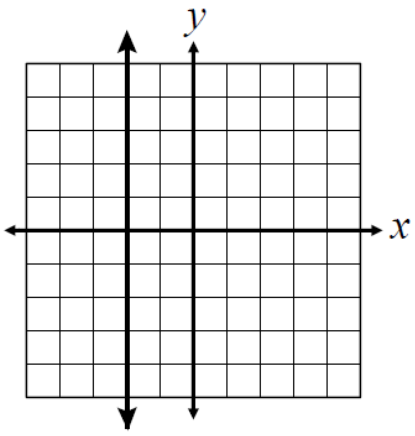
Math Summer Work
First TEP of SY26-27

11. What is the slope of the line graphed?



F. -2
G. 0
H. 2
J. undefined

12. Which is an equation of the line that passes through the points (5, 2) and (10, -3)?

A. $y = x - 3$
B. $y = x - 8$
C. $y = -x + 7$
D. $y = -x + 12$

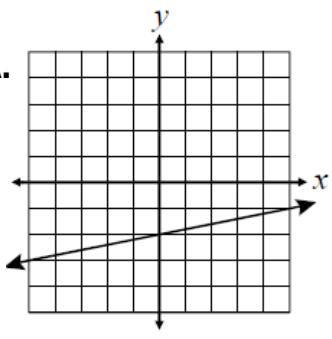
13. The formula below gives the sum of the degrees, S, of the interior angles of a polygon. If n represents the number of sides, which equation solves for n?

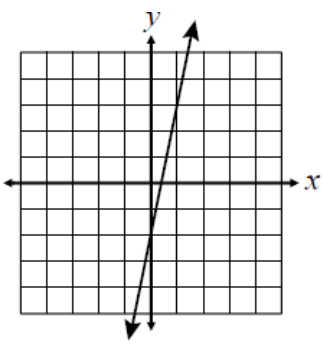
$$S = (n-2)\cdot 180$$

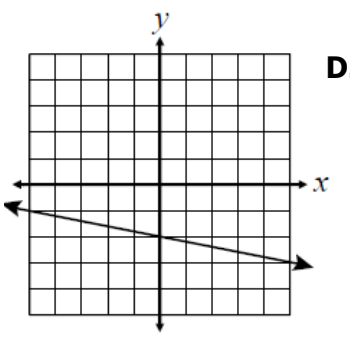
F. $n = \frac{S}{180} + 2$ **G.** $n = 180S + 2$ **H.** $n = \frac{S+2}{180}$ **J.** $n = (S+2)\cdot 180$

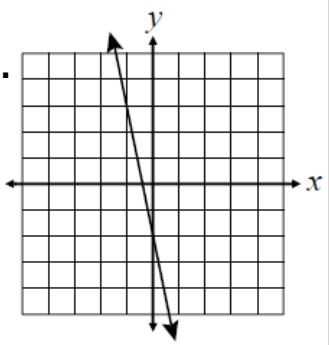
14. Which best represents the equation of the line below?

$$5x - y = 2$$

A.


B.


C.


D.


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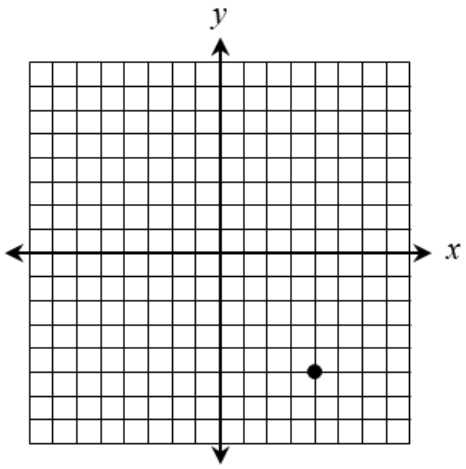
Math Summer Work
First TEP of SY26-27

15. Describe the type of solution for the linear system of equations given below.

$$\begin{cases} x + 4y = 7 \\ 8y = 14 - 2x \end{cases}$$

F. no solution
G. infinite solutions
H. one solution
J. two solutions

16. Which system of equations results in the solution plotted on the grid?



A. $\begin{cases} x = -5 \\ x - 4y = 24 \end{cases}$

B. $\begin{cases} 3x - y = -7 \\ 4x = 5y \end{cases}$

C. $\begin{cases} 3x + 2y = 2 \\ x - y = 1 \end{cases}$

D. $\begin{cases} x + y = -1 \\ x - 2y = 14 \end{cases}$

17. Jack paid $13.75 to buy 3 slices of pizza and 4 hot dogs at a concession stand. Sarah paid $9.75 to buy 2 slices of pizza and 3 hot dogs from the same concession stand. What was the price of a slice of pizza?

F. $1.50
G. $1.75
H. $2.00
J. $2.25

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Math Summer Work
First TEP of SY26-27

18. Which inequality is equivalent to $4x - 2y \leq 8$?

A. $y \leq 2x - 4$

B. $y \geq 2x - 4$

C. $y \leq -2x - 4$

D. $y \geq -2x - 4$

19. In simplest form, $\sqrt{845}$ is equal to

F. 13

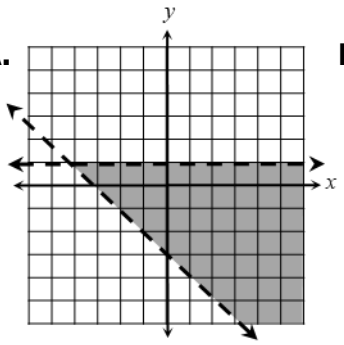
G. $13\sqrt{2}$

H. $13\sqrt{3}$

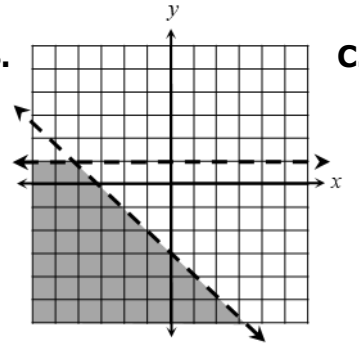
J. $13\sqrt{5}$

20. Which graph shows the solution to the following system of inequalities: $\begin{cases} x < 1 \\ x - y < 3 \end{cases}$

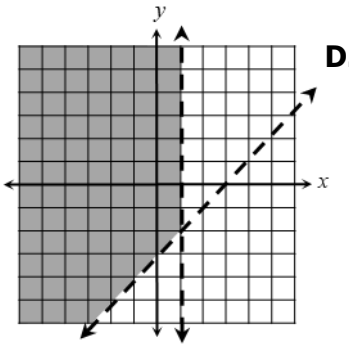
A.



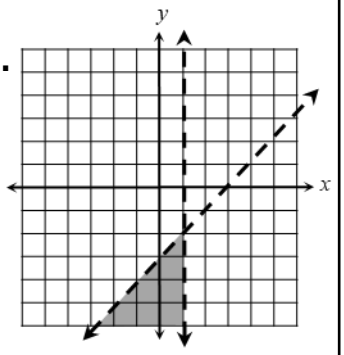
B.



C.



D.



21. What is the simplified form of the expression below?

$$\frac{(3m^4n)^3(2m^2n^5p)}{6m^4n^9p^8}$$

F. $9m^5np^7$

G. $\frac{m^{10}}{np^7}$

H. $\frac{m^5n^6}{p^7}$

J. $\frac{9m^{10}}{np^7}$

22. What is the simplified form of $(-5x^{-3}y^4)^2$?

A. $\frac{10y^8}{x^6}$

B. $\frac{25y^8}{x^6}$

C. $\frac{-10y^8}{x^6}$

D. $\frac{-25y^8}{x^6}$

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Math Summer Work
First TEP of SY26-27

23. If the dimensions of a rectangular garden can be represented by $(2x + 11)$ and $(3x + 5)$, then what is the area of the garden?

F. $5x + 16$
G. $5x^2 + 43x + 55$
H. $6x^2 + 43x + 55$
J. $6x^2 + 43x + 16$

24. When completely factored, $2x^3 - 200x$ equals

A. $2x(x^2 - 100)$
B. $2x(x - 10)(x - 10)$
C. $2x(x + 10)(x - 10)$
D. $2x(x + 50)(x - 50)$

25. Which of the following binomials is a factor of the expression $8y^2 - 10y - 3$?

F. $(4y - 1)$
G. $(4y + 1)$
H. $(2y + 3)$
J. $(y - 3)$

26. Which of the following values for x will make relation A shown below a function?

A = {(3, 5), (4, 9), (7, 2), (x, 6)},

A. 3
B. 4
C. 5
D. 7

27. What is $h(-8)$ for $h(x) = \frac{1}{4}x^2 + 7x$?

F. -40
G. -72
H. -52
J. -60

28. If $f(-2) = 16$, which could be the equation for $f(x)$?

A. $f(x) = x - 18$
B. $f(x) = 20 - 2x$
C. $f(x) = 3x + 24$
D. $f(x) = 8 - 4x$

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Math Summer Work
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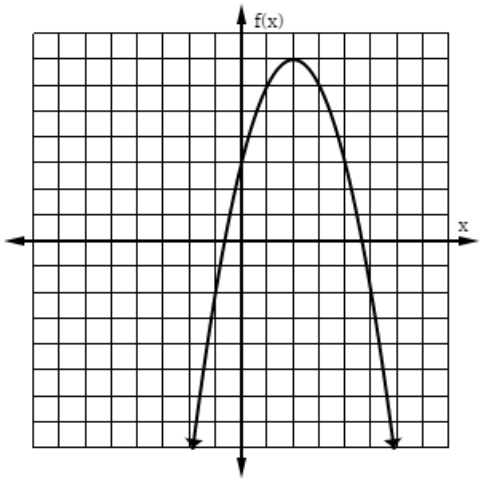
29. The graph of function $f(x)$ is shown below. What is $f(1) - f(5)$?



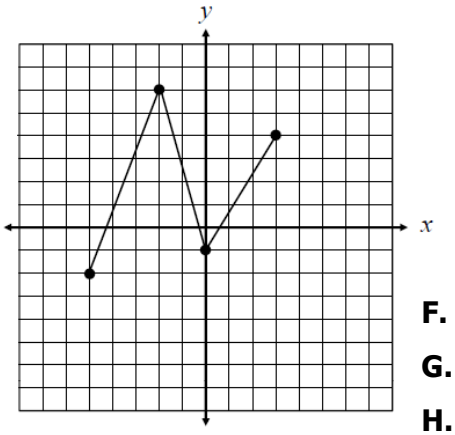
F. -6
G. -4
H. 4
J. 8

30. What is the domain of the relation shown in the table below?

x	-5	-2	0	3	6
y	-23	-14	-8	1	10

A. {-5, -2, 0, 3, 6}
B. {-23, -14, -8, 1, 10}
C. {-23, -14, -8, -5, -2, 0, 1, 3, 6, 10}
D. {(-5, -23), (-2, -14), (0, -8), (3, 1), (6, 10)}

31. What is the range of the function shown?



F. $\{x: -2 \le x \le 6\}$
G. $\{x: -5 \le x \le 3\}$
H. $\{y: -2 \le y \le 6\}$
J. $\{y: -5 \le y \le 3\}$

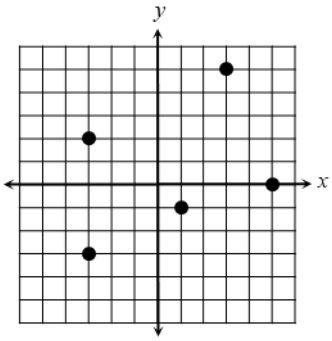
32. A function g is described below:

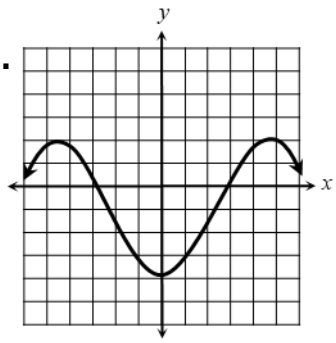
- **$g(x) = 2(x-3)^2 - 5$**
- **The domain of g is all real numbers greater than 0.**

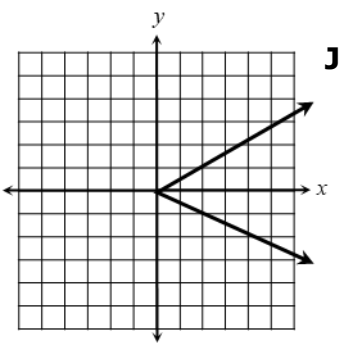
The range of g is all real numbers greater than or equal to –

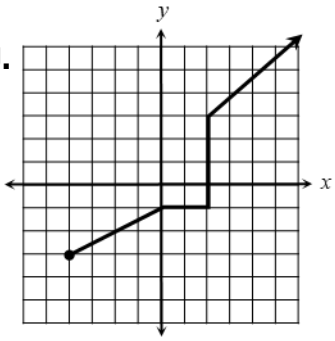
A. 5
B. -5
C. 3
D. -3

33. Which of the following graphs appears to represent a function?

F.


G.


H.


J.


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Math Summer Work
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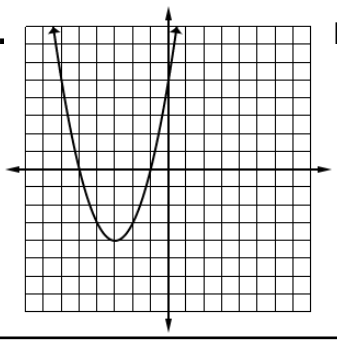
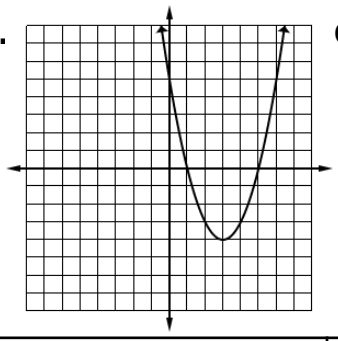
34. Which graph represents the function below?

$$f(x) = (x + 1)(x + 5)$$

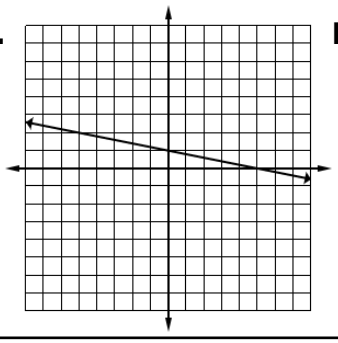
A.



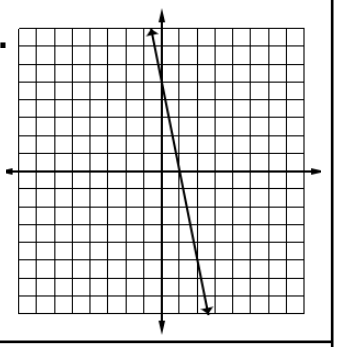
B.



C.



D.



35. Which quadratic equation has roots of 5 and 7?

F. $y = x^2 + 2x - 35$

G. $y = x^2 - 2x - 35$

H. $y = x^2 + 12x + 35$

J. $y = x^2 - 12x + 35$

36. What are the solutions of the equation $10x^2 + x = 2$?

A. $\left\{-\frac{1}{2}, \frac{2}{5}\right\}$

B. $\left\{-\frac{2}{5}, \frac{1}{2}\right\}$

C. $\left\{-5, \frac{1}{2}\right\}$

D. $\left\{-\frac{1}{2}, 5\right\}$

37. What are the solutions to the equation: $2 - 4x^2 = -110$?

F. $x = \{\pm 3\sqrt{3}\}$

G. $x = \{\pm 9\sqrt{3}\}$

H. $x = \{\pm 2\sqrt{7}\}$

J. $x = \{\pm 4\sqrt{7}\}$

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Math Summer Work
First TEP of SY26-27

38. The path of a firecracker is modeled by the equation $h(t) = -t^2 + 19t + 14$, where $h(t)$ is the height, in feet, of the firecracker at any given time, t. What is the height of the firecracker after 4 seconds from launch?

A. 63 feet
B. 68 feet
C. 70 feet
D. 74 feet

39. The data below represents the number of yearly customers, in millions, at a fast food restaurant since 1984. Which is closest to the number of customers that can be expected in 2016?

Year	Customers
1984	30.4
1987	44.2
1992	48.1
1998	55.3
2003	62.8
2010	77.5

F. 82 million
G. 86 million
H. 90 million
J. 94 million

40. A contractor determined the average amount of time needed to build a house.

- **When 5 workers are used, it takes 52 days to build the house.**
- **When 20 workers are used, it takes 13 days to build the house.**

If w represents the number of workers and d represent the number of days required to build the house, which statement is true about this relationship?

A. The time required to build a house varies directly with the number of workers because $d = 260w$.
B. The time required to build a house varies directly with the number of workers because $wd = 260$.
C. The time required to build a house varies inversely with the number of workers because $d = 260w$.
D. The time required to build a house varies inversely with the number of workers because $wd = 260$.