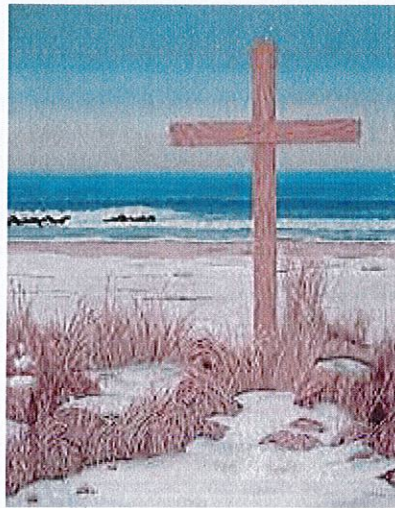Incoming 7th Grade

Holy Cross Academy
2025 Summer Assignments

Dear Students:

Get ready to shine brighter than the sun! As we end another terrific school year and look forward to the sunny days of summer, our learning journey continues with the attached summer reading and math packets. Our summer assignments aren't just tasks; they are your passport to a summer filled with growth and enrichment. So, let's dive in together, embrace the warmth of learning, and make this summer one to remember! Please complete and bring the assignments with you on the first day of school in September.

Enjoy the many blessings of summer!

Name: _____

<u>SHOW ALL WORK</u> NEEDED TO ANSWER EACH QUESTION! Good Luck! ☺

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1. Which of the following is equivalent to the expression shown below?

$$9^{-5} \cdot (-7)^8$$

A. $\dfrac{1}{9^5 \cdot 7^8}$

B. $(-9)^5 \cdot (-7)^8$

C. $\dfrac{(-7)^8}{9^5}$

D. $-(9^5 \cdot 7^8)$

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2. Which number is both a perfect square and a perfect cube number?

A. 9

B. 27

C. 64

D. 125

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3. Between which two consecutive numbers does the square root below lie?

$$-\sqrt{128}$$

A. -13 and -12

B. -12 and -11

C. -11 and -10

D. -10 and -9

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4. If the set below is ordered from least to greatest, which value could go in the box?

$$\left\{ 6^{-2}, \boxed{?}, \dfrac{2}{7} \right\}$$

A. 4%

B. 2^{-6}

C. 1×10^{-2}

D. 30%

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5. Which value is an integer but not a whole number?

A. 75%

B. $5^{-1} \cdot 10$

C. $\sqrt{20}$

D. $-\dfrac{4^3}{16}$

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6. Simplify the expression below.

$$\dfrac{5^3 - |-19| + 2}{(5 + 2^2) \cdot 3}$$

A. $-\dfrac{2}{27}$

B. 4

C. $\dfrac{147}{146}$

D. -20

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7. If $a = -4$ and $b = \dfrac{4}{3}$, find the value of the expression below.

$$\dfrac{1}{6}a^2 + \dfrac{9}{10}b$$

A. $-\dfrac{2}{15}$

B. $-\dfrac{22}{15}$

C. $\dfrac{38}{15}$

D. $\dfrac{58}{15}$

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8. Which expression could be placed in the box as an example of the associative property?

$$8 \cdot (m^2 \cdot n^2) = \boxed{ \ ? \ }$$

A. $8 \cdot (m \cdot n)^2$

B. $8m^2 \cdot 8n^2$

C. $(8 \cdot m^2) \cdot n^2$

D. $(m^2 \cdot n^2) \cdot 8$

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9. Once simplified, which expression is not equivalent to the other three expressions?

- **A.** $4(7 - 2m) - 10$
- **B.** $-5m - 11 - 3m + 29$
- **C.** $m - (9m + 1) + 17$
- **D.** $12 + 4m - 3(4m - 2)$

10. Simplify, then completely factor the expression below.

$$6(4y + 7) - 3(2y - 1)$$

- **A.** $3(6y + 15)$
- **B.** $3(6y + 13)$
- **C.** $9(2y + 5)$
- **D.** $9(2y + 3)$

11. Find the solution to the equation below.

$$2(4w - 3) = -2(2w + 15)$$

- **A.** $w = -2$
- **B.** $w = -3$
- **C.** $w = -6$
- **D.** $w = -9$

12. Find the solution to the equation below.

$$5(2a - 3) = 13a - 3(a - 5)$$

- **A.** $a = -2$
- **B.** $a = 5$
- **C.** No Solution
- **D.** Infinite Solution

13. The soccer team and the lacrosse team sold tubs of cookie dough as a fundraiser. Each tub sold earns $5 in profit. If the soccer team sold thirteen less than twice the number of tubs that the lacrosse team sold, and the two teams sold 224 tubs combined, how much money did the soccer team raise?

- **A.** $395
- **B.** $440
- **C.** $725
- **D.** $855

14. Which graph represents the solution to the inequality below?

$$-\frac{1}{2}(8a - 32) \le -4$$

- **A.**
- **B.**
- **C.**
- **D.**
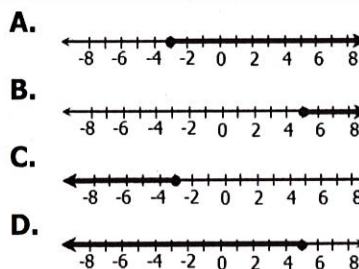
15. Which of the following values is a solution to the inequality below?

$$7n + 8 > 9n + 14$$

- **A.** 1
- **B.** 2
- **C.** -3
- **D.** -4

16. Translate and solve: "The difference between two-thirds of a number, n, and eleven is at least 17".

- **A.** $n \le 9$
- **B.** $n \le 42$
- **C.** $n \ge 9$
- **D.** $n \ge 42$

17. Simplify the expression shown below.

$$\frac{-12n^{10}}{4n^2}$$

A. $-3n^8$

B. $\dfrac{n^8}{3}$

C. $-3n^5$

D. $\dfrac{n^5}{3}$

18. Simplify the expression shown below.

$$9x^4 y^3 \cdot 5x^2 y^{-5} z^0$$

A. $\dfrac{45x^8}{y^{15}}$

B. $\dfrac{45x^6 z}{y^2}$

C. $\dfrac{45x^8 z}{y^{15}}$

D. $\dfrac{45x^6}{y^2}$

19. Which expression does not simplify to $27k^{12}$?

A. $12k^{-2} \cdot \dfrac{9}{4} k^{14}$

B. $\dfrac{81k^9}{3k^{-3}}$

C. $9k^3 \cdot 3k^4$

D. $(3k^4)^3$

20. When placed in the box, which exponent makes the statement true?

$$\frac{c^{\boxed{?}}}{c^{-2}} = \frac{1}{c^3}$$

A. 6

B. -5

C. -1

D. -6

21. Find the sum of 4.9×10^{-8} and 7×10^{-9}.

A. 1.19×10^{-16}

B. 1.19×10^{-18}

C. 5.6×10^{-8}

D. 5.6×10^{-9}

22. A company manufactured 1.8×10^9 light bulbs last year. Each light bulb is checked for defects before packaging. If 2% were found to have defects, how many had defects?

A. 3.6×10^7

B. 3.6×10^8

C. 2.16×10^5

D. 2.16×10^6

23. In a 5-day work week, Matt puts 175 miles on his car. His wife, Sarah, puts 100 more miles on her car than he does in the same amount of time. How many total miles will they put on their cars in 28 work days?

A. 1,560 miles

B. 2,520 miles

C. 2,780 miles

D. 2,940 miles

24. A map uses a scale of $\dfrac{5}{8}$ inch = 50 miles. If two cities are $1\dfrac{3}{4}$ inches apart on the map, find their actual distance.
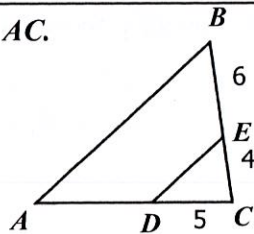
A. 90 miles

B. 110 miles

C. 125 miles

D. 140 miles

25. If $\triangle ABC \sim \triangle DEC$, find AC.

(B, 6, E, 4, A, D, 5, C labels)

A. 7.5

B. 8

C. 11

D. 12.5

26. Ben is buying a book that costs \$14.75 and a magazine that costs \$5.25. If he has a store coupon for 15% off and sales tax is 8%, how much will he pay in total?

A. 17.92

B. 18.36

C. 18.74

D. 19.08

27. Which of the following represents the greatest percent of change?

A. A person who weighed 175 pounds now weighs 140 pounds.

B. A price of a gallon of gas increased from \$2.30 to \$2.90.

C. A person who was making \$7 per hour now makes \$8.50 per hour.

D. A home worth \$195,000 is now worth \$160,000.

28. Kayla got a \$5,000 bonus from work. She decided to put the money in an account that earns 2.5% simple interest. If she makes no other deposits, how much money will be in the account after 12 years?

A. \$1,500

B. \$6,500

C. \$7,200

D. \$7,500

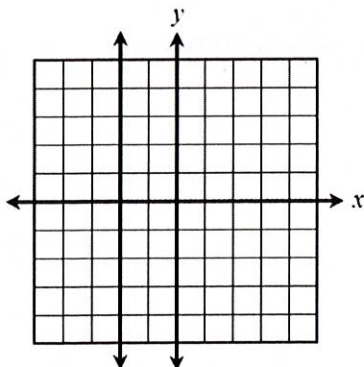**29.** What is the range of the relation plotted on the graph?
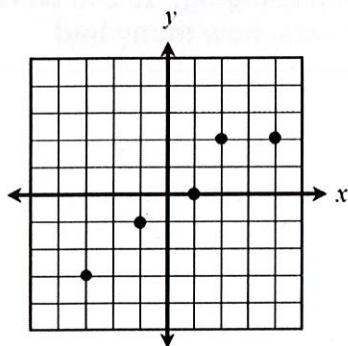
A. {-3, -1, 1, 2, 4}

B. {-3, -1, 0, 2}

C. {-3, -1, 1, 2}

D. {-3, -1, 0, 1, 2, 4}

30. Which of the following relations is not a function?

A. {(5, 5), (6, 6), (7, 7), (8, 8)}

B. {(-3, 1), (-4, 1), (-5, 1), (-6, 1)}

C. {(4, -5), (4, 7), (4, 1), (4, -1)}

D. {(0, 0), (4, 5), (5, 0), (3, 4)}

31. What is the slope of the line shown on the grid below?

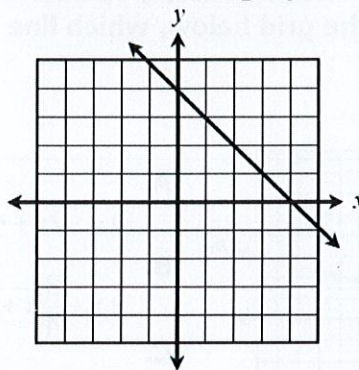
A. -2

B. 1

C. 0

D. undefined

32. The temperature was 54° at 7:00 a.m. At 3:00 p.m. on the same day, the temperature was 82°. What is the rate of change in temperature during this time?

A. 2.8° per hour

B. 3.1° per hour

C. 3.25° per hour

D. 3.5° per hour

33. Find the slope of the line that passes through the points (-1, -2) and (-9, -2).

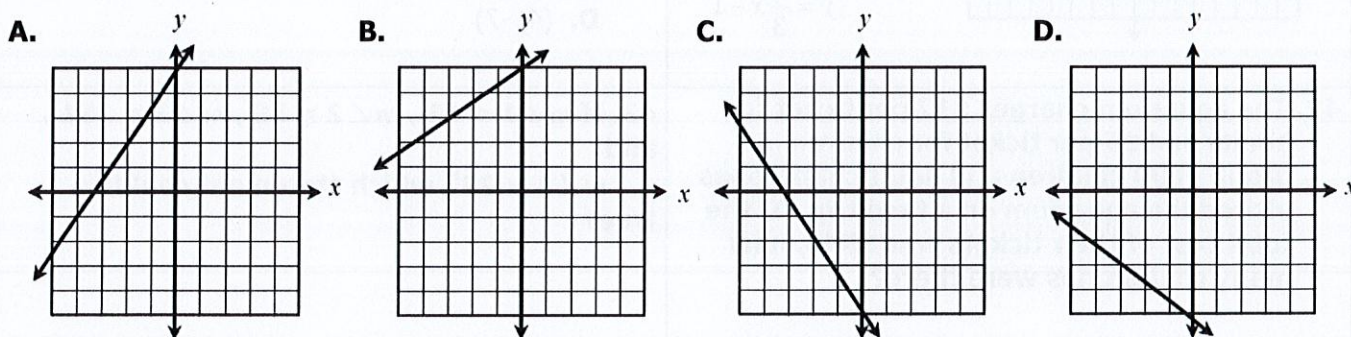**A.** $-\dfrac{1}{2}$

B. 0

C. $\dfrac{1}{2}$

D. undefined

34. Which equation best represents the line shown on the graph?

A. $y = -x + 4$

B. $y = -4x$

C. $y = 4x - 1$

D. $y = -4x + 4$

35. Which graph shows the line $3x - 2y = -10$?

A.

B.

C.

D.

36. A telephone company charges a $0.25 connection fee, then $0.10 per minute for long distance calls. Which statement is true regarding this situation?

A. The rate of change is $0.25 and minutes are the independent variable.

B. The rate of change is $0.25 and minutes are the dependent variable.

C. The rate of change is $0.10 per minute and minutes are the independent variable.

D. The rate of change is $0.10 per minute and minutes are the dependent variable.

37. Which table of values shows a direct variation?

A.

x	1	2	3	4
y	2	3	4	5

C.

x	0	-2	-1	1
y	0	-1	2	-2

B.

x	1	2	3	4
y	1	4	9	16

D.

| x	-9	-3	0	12
y	-3	-1	0	4

38. The number of miles a car can travel varies directly with the number of gallons of gas in its tank. If a car with 20 gallons of gas can drive 560 miles, which equation represents the number of miles, m, it can drive with g gallons of gas in its tank?

A. $m = \dfrac{1}{28}g$

C. $m = 28g$

B. $g = m + 28$

D. $g = 28m$

39. Which equation represents a linear function?

A. $y = \dfrac{x}{5}$

B. $xy = 18$

C. $x^2 + y^2 = 4$

D. $y = 2x^3 + 1$

40. Line m and line n form a system of equations with a solution of (4, 2). If line m is shown on the grid below, which line could be line n?
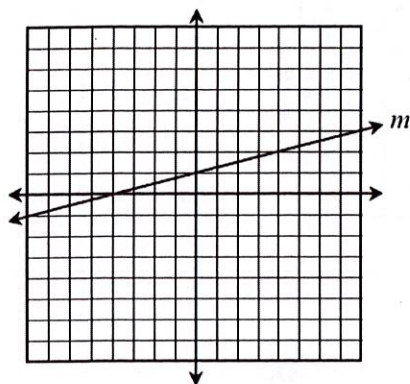
A. $y = -2x + 4$

B. $y = -\dfrac{3}{4}x + 5$

C. $y = -x + 4$

D. $y = \dfrac{4}{3}x - 1$

41. Which ordered pairs represents the solution to the system of equations shown below?

$$\begin{cases} x - 3y = -19 \\ 2x + 5y = 6 \end{cases}$$

**A.** (-7, 4)

B. (7, -4)

C. (-4, 7)

D. (4, -7)

42. The aquarium charges $12 per ticket for adults and $5 per ticket for children. A group of 90 children and adult chaperones visited the aquarium on a field trip. If the total cost of their tickets was $548, how many chaperones were there?

A. 12

B. 13

C. 14

D. 15

43. If $m\angle 1 = 61°$, $m\angle 2 = 29°$, $m\angle 3 = 151°$, and
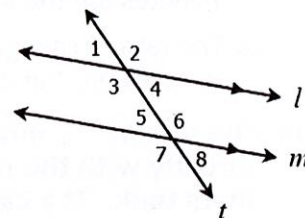$m\angle 4 = 29°$, which statement could be true?

A. $\angle 1$ and $\angle 2$ are vertical angles

B. $\angle 2$ and $\angle 3$ are complementary angles

C. $\angle 2$ and $\angle 4$ are complementary angles

D. $\angle 3$ and $\angle 4$ are supplementary angles

**44.** Given the diagram below, if $m\angle AEC = (5x + 1)°$ and $m\angle CEB = (9x - 3)°$, find the value of x.
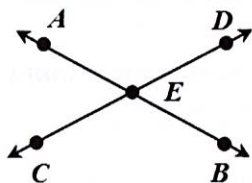
A. $x = 1$

B. $x = 7$

C. $x = 9$

D. $x = 13$

45. Given the diagram below, which statement is not true?

A. $\angle 1$ and $\angle 5$ are corresponding angles and congruent

B. $\angle 3$ and $\angle 4$ are alternate interior angles and supplementary

C. $\angle 4$ and $\angle 6$ are consecutive interior angles and supplementary

D. $\angle 2$ and $\angle 7$ are alternate exterior angles and congruent

46. What is the approximate length of $\overline{RS}$?
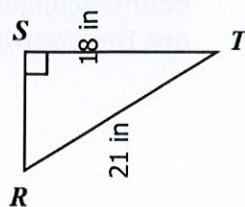

A. 9.5 in

B. 10.8 in

C. 12.1 in

D. 12.8 in

47. Which side length do not form a right triangle?

A. 9 cm, 40 cm, 41 cm

B. 12 ft, 16 ft, 20 ft

C. 8 m, 15 m, 17 m

D. 10 yd, 15 yd, 20 yd

48. A wire is securely attached from the top of a 26-foot pole to a stake on the ground 14 feet from the base of the pole. Find the length of the wire to the nearest tenth of a foot.

A. 21.9 feet

B. 24.3 feet

C. 28.7 feet

D. 29.5 feet

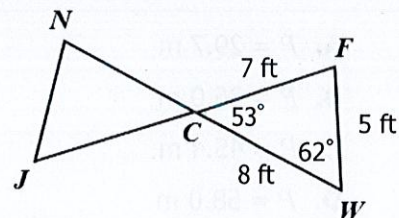**49. Which statement is true regarding figure A and figure B below?**
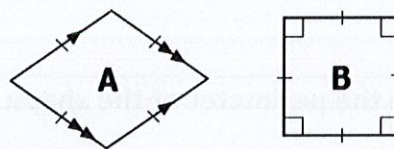
A. Only figure A is a rhombus.

B. Both figures are rhombi.

C. Only figure A is a parallelogram.

D. Both figures are rectangles.

50. If a figure has 24 sides, what is the sum of the measures of its interior angles?

A. 4,320°

B. 4,140°

C. 3,960°

D. 3,780°

51. If $\triangle JNC \cong \triangle WFC$, which statement is not true?

A. $NC = 8$ ft

B. $JN = 5$ ft

C. $m\angle NCJ = 53°$

D. $m\angle N = 65°$

52. Which pair of points represent a reflection in the y-axis?

A. $A'(-3, -5)$ and $A'(3, -5)$

B. $B'(7, -6)$ and $B'(7, 6)$

C. $C'(-1, -2)$ and $C'(1, 2)$

D. $D'(4, 5)$ and $D'(-4, -5)$

53. Point L was plotted at (-4, 1), then L was transformed creating point L' at (-1, -4). Which transformation rule could have been used to plot L'?

A. A reflection in the x-axis.

B. A 180° rotation about the origin.

C. A 270° counterclockwise rotation about the origin.

D. A translation using the rule $(x, y) \rightarrow (x + 3, y - 5)$.

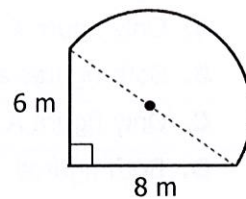**54. Identify the scale factor that was used to graph △X′Y′Z.**
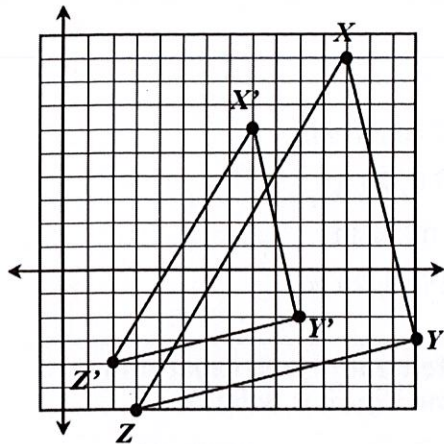
A. 3

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

C. $\dfrac{3}{2}$

D. $\dfrac{2}{3}$

55. If point P, located at (6, -2), is rotated 270° counterclockwise about the origin, what are the coordinates of its image, P'?
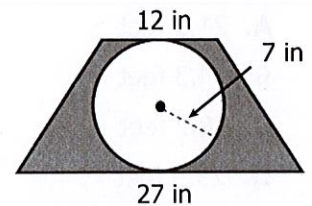
A. (6, 2)

B. (2, 6)

C. (-2, -6)

D. (-2, 6)

56. What is the perimeter of the shape shown below?

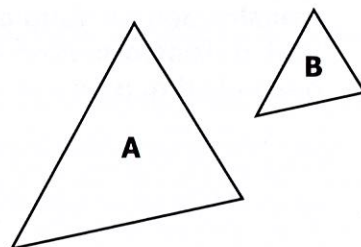6 m

8 m

A. $P = 29.7$ m

B. $P = 36.0$ m

C. $P = 45.4$ m

D. $P = 58.0$ m

57. Find the area of the shaded region to the nearest tenth.

12 in

7 in

27 in

A. $A = 105.5$ in^2

B. $A = 119.1$ in^2

C. $A = 127.4$ in^2

D. $A = 133.8$ in^2

58. The triangles below are similar. If the perimeter of Triangle A is 52 feet and the perimeter of Triangle B is 13 feet, find the ratio of the area of Triangle A to Triangle B.

A. 4:1

B. 8:1

C. 12:1

D. 16:1

59. Which solid does not have a rectangular cross section when cut perpendicular to its base?

A.

C.

B.

D.