Geometry Summer Math Packet

Name: _____ **Date:** _____

1. If $3(x+2)-2(x+1)=8$, the value of x is 1. ☐

   A. 1 B. $\frac{1}{5}$ C. 5 D. 4

2. What is the value of x in the equation $13x-2(x+4)=8x+1$? 2. ☐

   F. 1 G. 2 H. 3 J. 4

3. Solve for x: $0.35x+0.6=0.1x+1$ 3. ☐

4. Solve for x: $5x+2x-4=4x+5$ 4. ☐

5. Perform the indicated operations and express as a trinomial: $(x+4)(x-2)+3x$ 5. ☐

6. Express $(4x-5)(6x+5)$ as a trinomial. 6. ☐

7. The expression $(x-4)^2$ is equivalent to 7. ☐

   A. x^2-16 B. x^2+16

   C. $x^2-8x+16$ D. $x^2+8x+16$

8. Factor: $25x^2-9$ 8. ☐

9. If $x-3$ is a factor of x^2+x-12, then the other factor is 9. ☐

   A. $4x-3$ B. $3x-4$ C. $x-4$ D. $x+4$

10. Factor: x^2-6x-7 10. ☐

11. Factor: x^2+6x+8 11. ☐

12. What is the solution set of $x^2 - x - 20 = 0$? 12. ☐

F. $\{5, -4\}$ G. $\{-5, 4\}$ H. $\{-10, 2\}$ J. $\{10, -2\}$

13. What is the *negative* value of x that satisfies the equation $2x^2 + 5x - 3 = 0$? 13. ☐

A. -1 B. $-\frac{1}{2}$ C. -3 D. $-\frac{2}{3}$

14. What are the roots of the equation $x^2 - 10x + 21 = 0$? 14. ☐

F. 1 and 21 G. -5 and -5 H. 3 and 7 J. -3 and -7

15. What is the solution set of the equation $x^2 - 5x - 24 = 0$? 15. ☐

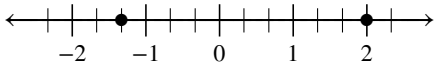
A. $\{-3, 8\}$ B. $\{-3, -8\}$ C. $\{3, 8\}$ D. $\{3, -8\}$

16. Express $\dfrac{2x - 10}{x^2 - 2x - 15}$ in simplest form. 16. ☐

17. Express the product in lowest terms: $\dfrac{x^2 - x - 6}{3x - 9} \cdot \dfrac{2}{x + 2}$ 17. ☐

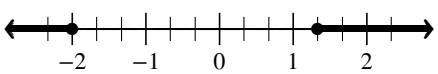
18. Solve for x: $|5 - 2x| = 7$ 18. ☐

19. Which is a graph of the solution set of $|3x + 1| = 5$? 19. ☐

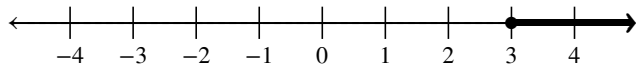
A. 

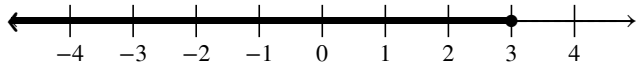
B. 

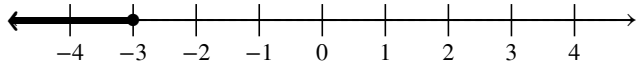
C. 

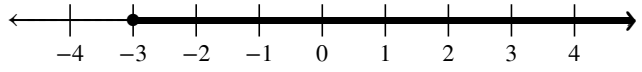
D. 

20. Which graph represents the solution of the inequality $-3x + 1 \leq 10$? 20. ____

F. 

G. 

H. 

J. 

21. Which inequality is represented by the graph? 21. ____

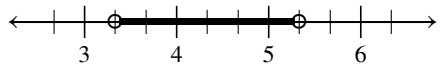
A. $-1 < x < 2$

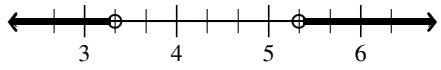
B. $-1 \leq x < 2$

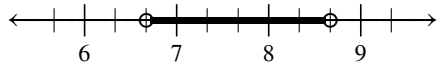
C. $-1 < x \leq 2$

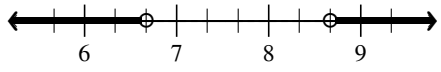
D. $-1 \leq x \leq 2$

22. What is the graph of the solution set of $15 < 3x + 5 < 21$? 22. ____

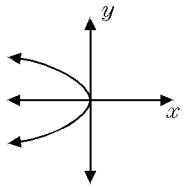
F. 

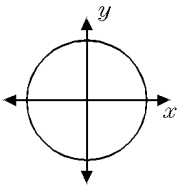
G. 

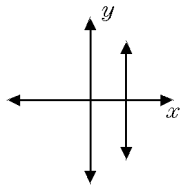
H. 

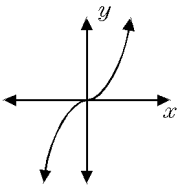
J. 

23. Which graph represents a function? 23. ____

A. 

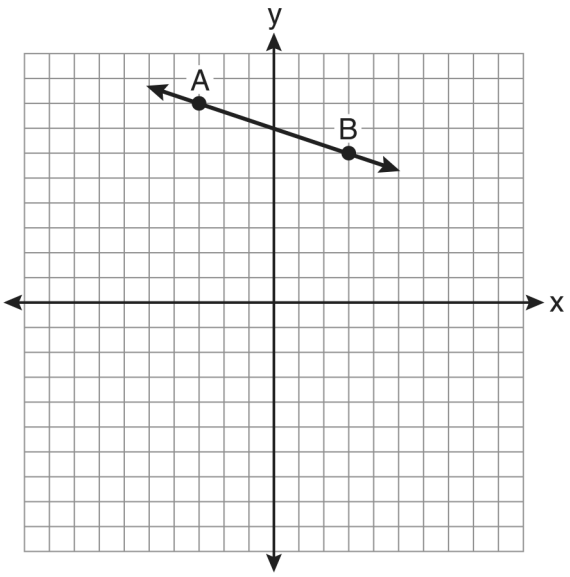
B. 

C. 

D. 

24. If $f(x) = -2x^2 + 6$, find the value of $f(-3)$. 24. ____

25. What is the slope of the line passing through the points A and B, as shown on the graph below? 25. ____



A. -3 B. $-\frac{1}{3}$ C. 3 D. $\frac{1}{3}$

26. Write an equation of the line that passes through the point $(0, 3)$ and whose slope is 2. 26. ____

27. Write an equation of the straight line whose slope is 2 and whose y-intercept is the same as that of the line represented by the equation $y = 4x - 2$. 27. ____

28. Which is an equation of the line that is parallel to $y = 2x - 8$ and passes through the point $(0, -3)$? 28. ☐

F. $y = 2x + 3$ G. $y = 2x - 3$ H. $y = -\frac{1}{2}x + 3$ J. $y = -\frac{1}{2}x - 3$

29. Write an equation that represents the line that passes through the points $(5, 4)$ and $(-5, 0)$. 29. ☐

30. Write an equation of a line that is perpendicular to the line $y = \frac{2}{3}x + 5$ and that passes through the point $(0, 4)$. 30. ☐

31. Solve the following system of equations for x: 31. ☐

$$x + y = 6$$
$$x - y = 2$$

32. Solve the following system of equations algebraically and check: 32. ☐

$$3x + 2y = 6$$
$$5x - 3y = -28$$

33. Solve the following system of equations graphically and check: 33. ☐

$$3x + y = 3$$
$$y = 2x - 7$$

34. The formula for changing Celsius (C) temperature to Fahrenheit (F) temperature is $F = \frac{9}{5}C + 32$. Calculate, to the *nearest degree*, the Fahrenheit temperature when the Celsius temperature is -8. 34. ☐

35. Find three consecutive even integers such that when the first integer is multiplied by the third integer, the result is 2 more than 5 times the second integer. [*Only an algebraic solution will be accepted.*] 35. ☐

36. What is $\frac{\sqrt{32}}{4}$ expressed in simplest radical form? 36. ☐

F. $\sqrt{2}$ G. $4\sqrt{2}$ H. $\sqrt{8}$ J. $\frac{\sqrt{8}}{2}$

37. When $5\sqrt{20}$ is written in simplest radical form, the result is $k\sqrt{5}$. What is the value of k? 37. ☐

A. 20 B. 10 C. 7 D. 4

38. If $\sqrt{84}$ is simplified to $a\sqrt{b}$ such that a and b are integers, what is the value of a? 38. ☐

39. When simplified $\sqrt{50}$ equals $x\sqrt{y}$. If x and y are both integers, what is the value of x? 39. ☐

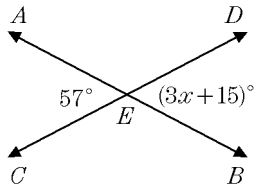
40. Solve for x: $\dfrac{2x-4}{3} = \dfrac{3x+4}{2}$ 40. ☐

41. The measures of the angles of a triangle are represented by $(3x - 20)$, $(7x + 30)$, and $(2x + 50)$. Find x. 41. ☐

42. If the length of one of the legs of a right triangle is 10 and the length of the other leg is 24, what is the length of the hypotenuse? 42. ☐

F. 13 G. 17 H. 26 J. 169

43. In the accompanying diagram, $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ intersect at E, and $m\angle AEC = 57$. If $m\angle DEB = 3x + 15$, find the value of x. 43. ☐



44. When two parallel lines are cut by a transversal, which angles are *not* always congruent? 44. ☐

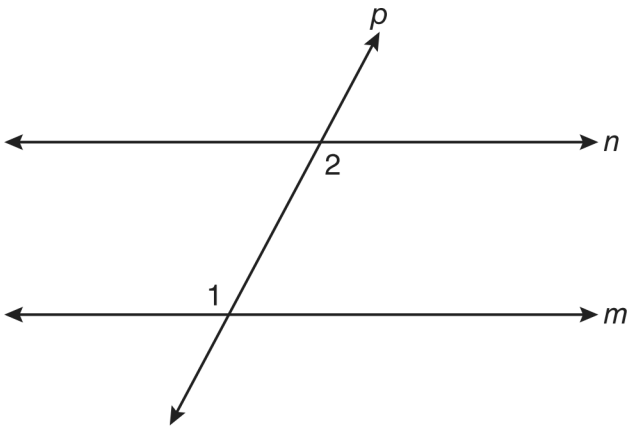
F. a pair of alternate interior angles

G. a pair of alternate exterior angles

H. two interior angles on the same side of the transversal

J. two corresponding angles

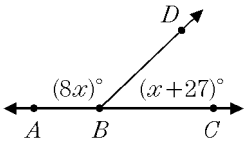
45. In the diagram below, line p intersects line m and line n. 45. ____



If $m\angle 1 = 7x$ and $m\angle 2 = 5x + 30$, lines m and n are parallel when x equals

A. 12.5 B. 15 C. 87.5 D. 105

46. In the accompanying diagram, $\overleftrightarrow{ABC}$ is a straight line. $m\angle ABD = 8x$, and $m\angle DBC = x + 27$. Find x. 46. ____



47. Find the perimeter of a square whose area is 25. 47. ____

48. Find the area of a right triangle whose legs have lengths 6 and 8. 48. ____

49. The diameter of a circle is 8. What is the area of the circle in terms of π? 49. ____

50. In the accompanying diagram, $\triangle ABC$ is similar to $\triangle DEF$, $\angle A \cong \angle D$, and $\angle B \cong \angle E$. If $AB = 3$, $BC = 12$, $DE = x + 2$, and $EF = 18$, find the value of x.

50. ____