

Name _____

GEOMETRY READINESS TEST (ALGEBRA I COMPETENCY)

1. Simplify $(3a-5) - (5a-3)$

- (A) $2a-8$ (B) $-2a-2$ (C) $-2a-8$ (D) $2a+8$

2. $(\frac{2k}{5})^{-3}$

- (A) $\frac{2}{5k^3}$ (B) $\frac{15}{6k^3}$ (C) $\frac{8k^3}{-125}$ (D) $\frac{125}{8k^3}$

3. Evaluate $3 + 15 \div 5 - 10$

- (A) $-\frac{6}{5}$ (B) -4 (C) $-\frac{18}{15}$ (D) -6.4

4. $(3a^3b)(15ab^5)$

- (A) $18a^4b^6$ (B) $45a^4b^6$ (C) $35a^4b^6$ (D) $45a^3b^5$

5. If $x - \frac{3}{8}x = 5$, then $x =$

- (A) -10 (B) -1 (C) 1 (D) 8

6. $(3x+2y)^2 =$

- (A) $9x^2 + 4y^2$ (B) $9x^2 + 10xy + 2y^2$
(C) $9x^2 + 6xy + 4y^2$ (D) $9x^2 + 12xy + 4y^2$

7. $\sqrt{5}\sqrt{15} =$

- (A) $5\sqrt{3}$ (B) $25\sqrt{3}$ (C) $3\sqrt{5}$ (D) $\frac{75}{2}$

8. $(x-5)(3x+4) = 0$ one solution is:

- (A) -5 (B) $-\frac{4}{3}$ (C) $-\frac{3}{4}$ (D) -4

9. If $x+y=2$ then $y=$
 $x-y=6$

- (A) 4 (B) 2 (C) -2 (D) -4

10. What percent of 12 is 18?

- (A) 150% (B) $33\frac{1}{3}\%$ (C) 1.5% (D) $66\frac{2}{3}\%$

11. $\sqrt{48} - \sqrt{12} =$

- (A) $2\sqrt{3}$ (B) $12\sqrt{3}$ (C) 6 (D) $\sqrt{48} - \sqrt{12}$

12. Factor $32x^2 - 2a^2$ completely.

- (A) $2(16x^2 - a^2)$ (B) $2(4x-a)(4x+a)$
 (C) $(16x-a)(16x+a)$ (D) $2(4x+a)^2$

13. Factor $x^2 + x - 6$ completely.

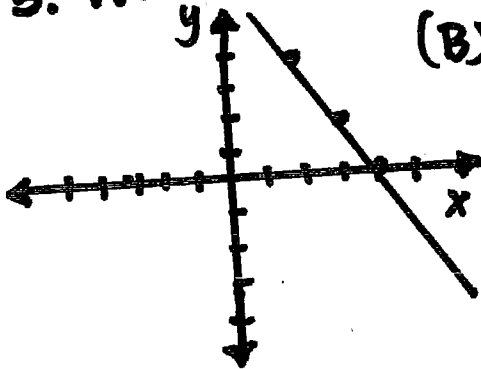
- (A) $(x+2)(x-3)$ (B) $(x+6)(x-1)$
 (C) $(x+3)(x-2)$ (D) $(x-6)(x+1)$

14. $2x-3 \geq 4x+5$ is equivalent to

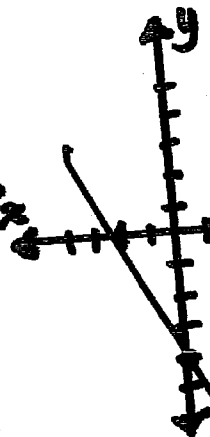
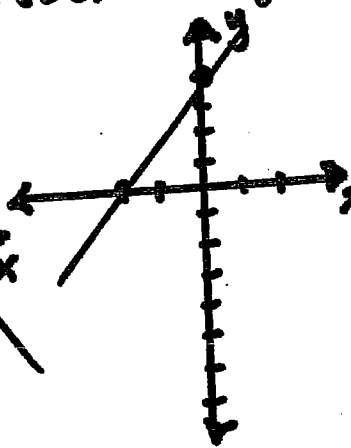
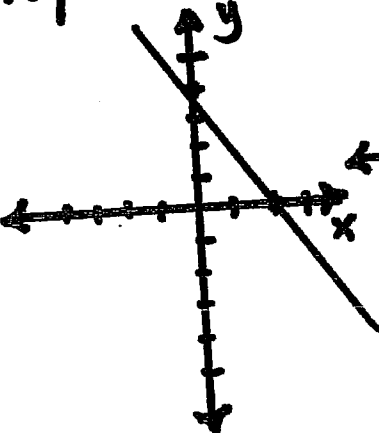
- (A) $x \leq -4$ (B) $x \geq -4$ (C) $x \leq 1$ (D) $x \geq -1$

15. Which of the graphs is represented by $y = -2x + 4$

(A)



(B)



16-18 For the following questions use the equation $2x - 3y = 6$ to answer

16. The slope is:

- (A) $-\frac{2}{3}$ (B) $\frac{3}{2}$ (C) -3 (D) $\frac{2}{3}$

17. The y-intercept is:

- (A) 2 (B) -2 (C) 6 (D) -3

18. The equation of a line ^{passing} parallel through (0, 5) is:

- (A) $2x - 3y = 6$ (B) $2x - 3y = 15$
(C) $2x - 3y = 5$ (D) $2x - 3y = -15$

19. If $x = 3$ and $y = -2$, then $\frac{7x - 3y}{2x + y} =$

- (A) 23 (B) $\frac{27}{4}$ (C) $\frac{37}{8}$ (D) $\frac{15}{4}$

20. $\frac{3t^2 - 6t}{3t} =$

- (A) $t - 6$ (B) $3t^2 - 2$ (C) $t - 2$ (D) $t + 2$

21. $(y^2 - 4y + 3) - (4y^2 + 5y - 2) =$

- (A) $-3y^2 - 9y + 5$ (B) $-3y^2 - 9y + 1$
(C) $-3y^2 - y + 5$ (D) $-3y^2 - y - 5$

22. One of the solutions of $x^2 - x = 12$ is

- (A) -12 (B) -4 (C) -3 (D) 3

23. $ax - b = 0$ and $a \neq 0$, then $x =$
 (A) $\frac{b}{a}$ (B) $-\frac{b}{a}$ (C) $b - a$ (D) $\frac{a}{b}$

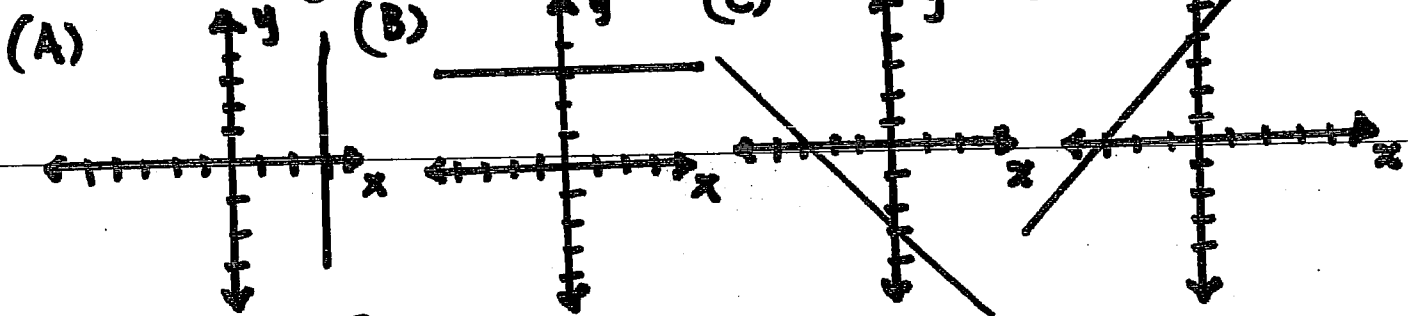
24. A rectangle has width w meters and perimeter 72 meters. Which of the following is an expression for the length, in meters, of the rectangle?

(A) $\frac{36}{w}$ (B) $\frac{72}{w}$ (C) $72 - w$ (D) $36 - w$

25. $\frac{w^2 + 6w + 5}{w + 5} =$

(A) $w + 1$ (B) $w + 6$ (C) $w^2 + 6$ (D) $w + 6 + \frac{5}{w + 5}$

26. Which of the following could be a portion of the graph $x = 3$



27. If $\frac{3}{x-1} = 2$ then $x =$

(A) $\frac{1}{2}$ (B) $\frac{2}{5}$ (C) 2 (D) $\frac{5}{2}$

28. If the width of a rectangle is 3 inches less than its length, and the perimeter is 94 inches, what is the length, in inches, of the rectangle?

(A) $23\frac{1}{2}$ (B) 25 (C) $48\frac{1}{2}$ (D) 22

29. What are the possible values of x such that $x^2 = 2x$?

- (A) 0 and 2 (B) 2 only (C) $\sqrt{2}$ only (D) $-\sqrt{2}$ and $\sqrt{2}$

30. If $2x^2 + 12x + 18 = 2(x+k)^2$ the value of k is:

- (A) 9 (B) -3 (C) 3 (D) -9

31. $(-3)^2(-3)^3 =$

- (A) -81 (B) 243 (C) 81 (D) -243

32. $(-\frac{18}{25})(-\frac{5}{27}) =$

- (A) $-\frac{2}{5}$ (B) $\frac{3}{5}$ (C) $\frac{2}{15}$ (D) $\frac{2}{9}$

33. Factor completely $5a^3 - 10a^2 + 15a$

- (A) $5(a^3 - 2a^2 + 15a)$ (B) $5a(a^2 - 2a + 3)$
 (C) $5a(a^3 - 2a + 3)$ (D) $5a^2(a - 2a + 3)$

34. $-3x \geq 6$



35. If $(7m+2n)^2 = 49m^2 + kmn + 4n^2$, the value of k is:

- (A) 2 (B) 14 (C) 28 (D) $28mn$

36. -6^2 means

- (A) $(-6)(-6)$ (B) $-1(6)(6)$ (C) $(-2)(-2)(-2)(-2)(-2)$
 (D) $-1(2)(2)(2)(2)(2)(2)$

37. $5rt + 15r^2t^3 =$

- (A) $5rt(3rt^3)$ (B) $5rt(3rt)$ (C) $5rt(1+3rt^2)$
(D) $5r^2(t+3rt^3)$

38. Write an open sentence for:

"two less than Maria's age is 12"

- (A) $a - a = 12$ (B) $a + a = 12$
(C) $a - 2 = 12$ (D) $a - 12 = 2$

39. $\left(\frac{3a^2b}{4}\right)^a \left(\frac{a}{ab^3}\right)^7 =$

- (A) $\frac{6}{b^{10}}$ (B) $\frac{9}{b^{10}}$ (C) $\frac{9}{b^5}$ (D) $\frac{6}{b^5}$

40. Factor completely $5x^2 + 20x + 20$

- (A) $5(x^2 + 4x + 4)$ (B) $5(x-2)^2$
(C) $5(x+2)^2$ (D) $(5x+10)(x+2)$

41. Factor $2x^2y^2 + 4xy + 2$

- (A) $(2xy+1)^2$ (B) $(2x+1)(y+2)$
(C) $2(xy+1)^2$ (D) $2(xy+2)^2$

42. In the equation $y = \frac{1}{2}x + 2$, the one statement that is false is:

- (A) The slope is $\frac{1}{2}$ (B) the y-intercept is 2
(C) The perpendicular slope is $-\frac{1}{2}$
(D) The perpendicular slope is -2

43. $\frac{\sqrt{3}+2}{\sqrt{3}-2}$ simplifies to:

(A) $\frac{\sqrt{3}+2}{\sqrt{3}-2}$ (B) $\frac{7+4\sqrt{3}}{7}$ (C) $\frac{7+4\sqrt{3}}{-1}$

(D) $\frac{7+2\sqrt{3}}{-1}$

44. $\sqrt{50} - 2\sqrt{18} =$

(A) $2\sqrt{3}$ (B) $-\sqrt{2}$ (C) $3\sqrt{2}$ (D) $2\sqrt{2}$

45. Factor $2+7x+3x^2$

(A) $(3x+1)(x+2)$ (B) $(3x+2)(x+1)$
(C) $(x+7)(3x+2)$ (D) $(x+2)(3x+2)$

46. If $100x^2+80x+16 = k(5x+2)^2$, the value of k is:

(A) 20 (B) 4 (C) 2 (D) -4

47. $\frac{(-2x)^2}{(-2r)^{-3}} =$

(A) $\frac{x^2}{r^3}$ (B) $\frac{x^2}{-2r^3}$ (C) $-\frac{x^2r}{6}$ (D) $-32x^2r^3$

48. Write an open sentence for:

"5 more than 12 times a number is 113"

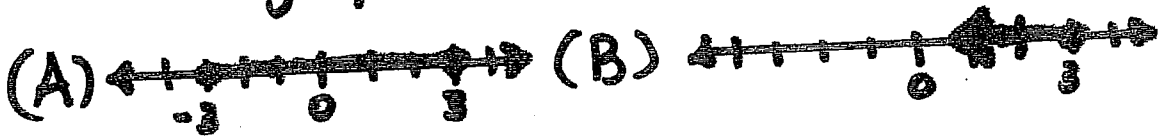
(A) $113N+5=12$

(B) $5N+12=113$

(C) $12N+5=113$

(D) $113+5=12N$

49. The graph of $|x| \leq 3$ is



50. The graph of $y \leq 3x - 2$ and $y \geq \frac{1}{2}x + 1$ is:

