Practice Midterm Exam Name: KEY

Algebra 1 CP

1. Write an algebraic expression for 7 less than the square of a number.

A. $7 < x^2$ **B.** $7 > x^2$ **C.** $7 - x^2$ **(D.)** $x^2 - 7$

2. Evaluate: $6a^2 + b(c - 3a)$ *if* $a = 3,\ b = 5,\ c = 16$

$6(3)^2 + 5(16 - 3(3)) = 54 + 5(7)$

$= 54 + 35$

A. 116 **(B.)** 89 **C.** 125 **D.** 71

3. What is the simplest form of: $4[5t + 2(3t + 5)]$?

$4[5t + 6t + 10] = 4[11t + 10] = 44t + 40$

A. $4(11t + 10)$ **B.** $26t + 10$ **(C.)** $44t + 40$ **D.** $84t$

4. Distance traveled (d) equals the rate (r) times the time (t). If Jenny drove at a rate of 57 mph for two and a half hours, how far did she travel?

$d = 57 \cdot 2.5 = 142.5$

A. 28.5 miles **B.** 114 miles **C.** 157 miles **(D.)** 142.5 miles

5. What fractions are written in order from least to greatest?

(A.) $\frac{7}{13}, \frac{6}{11}, \frac{9}{14}$ **B.** $\frac{6}{11}, \frac{7}{13}, \frac{9}{14}$ **C.** $\frac{9}{14}, \frac{6}{11}, \frac{7}{13}$ **D.** $\frac{7}{13}, \frac{9}{14}, \frac{6}{11}$

6. Simplify: $\frac{-3x + 12}{-6}$ $= \frac{-3x}{-6} + \frac{12}{-6} = \frac{1}{2}x - 2$

A. $3x + 2$ **B.** $-3x - 2$ **C.** $-\frac{1}{2}x + 2$ **(D.)** $\frac{1}{2}x - 2$

7. Fill in the blank: $\frac{7}{3}$ __>__ -7

A. = **(B.)** > **C.** <

8. Solve: $m - (-4) = 7$

$m + 4 = 7$

$m = 3$

(A.) 3 **B.** -3 **C.** 11 **D.** -11

9. Solve: $7 - x = 2$

$-7 \quad -7$

$\frac{-x}{-1} = \frac{-5}{-1}$ $x = 5$

A. 9 **B.** -9 **(C.)** 5 **D.** -5

10. The sum of two integers is -46. The greater integer is 13. What is the lesser integer?

$x + y = -46$

$x + 13 = -46$

$x = -59$

A. 59 **(B.)** -59 **C.** -33 **D.** 33

11. Solve: $\frac{m}{8} = -18 \cdot \frac{6}{1}$ $m = -108$

(A.) -108 **B.** 108 **C.** 3 **D.** -3

12. Solve: $\frac{-26y}{-26} = \frac{884}{-26}$

A. 910 **B.** 858 **C.** 34 **D.** -34

13. Solve: $\frac{5}{3}\cdot\frac{3}{5}x = \frac{15}{1}\cdot\frac{5}{3}$ $x = 25$

A. 45 **B.** 5 **C.** 25 **D.** 75

14. Solve: $5x + 3 = 23$ $5x = 20$, $x = 4$

A. 4 **B.** -4 **C.** 5 **D.** -5

15. Solve: $\frac{x}{7} = \frac{13}{42}$ $\frac{42x}{42} = \frac{91}{42}$ $x = 2\frac{1}{6}$

A. 91 **B.** 6 **C.** $2\frac{1}{6}$ **D.** $\frac{6}{13}$

16. Solve: $\frac{8}{6} = \frac{a+4}{a-1}$ $8(a-1) = 6(a+4)$, $8a - 8 = 6a + 24$, $2a - 8 = 24$, $2a = 32$, $a = 16$

A. 16 **B.** 12 **C.** 24 **D.** 32

17. Solve: $\frac{n}{3} - 8 = -2$ $\frac{n}{3} = 6$ $n = 18$

A. -30 **B.** 30 **C.** -18 **D.** 18

18. Solve: $-14 = \frac{c+12}{-6}$ $84 = c + 12$, $72 = c$

A. -72 **B.** 72 **C.** 96 **D.** -96

19. Solve: $2x + 7 = 5x + 16$ $7 = 3x + 16$, $-9 = 3x$, $-3 = x$

A. -3 **B.** $\frac{2}{3}$ **C.** $-\frac{23}{3}$ **D.** 3

20. Solve for y: $2x - y = 3$ $-y = -2x + 3$, $y = 2x - 3$

A. y = 2x - 3 **B.** y = -2x - 3 **C.** y = -2x + 3 **D.** y = 2x + 3

21. By federal law, the ratio of the width to the length of the U.S. flag is 10 to 19. If you want to make a flag with an 8-foot width, what should be its length?

$\frac{10}{19} = \frac{8}{x}$, $10x = 152$, $x = 15.2$

A. 23.75 ft **B.** 15.2 ft **C.** 4.21 ft **D.** 152 ft

22. What is 14% of 32? $\frac{x}{32} = \frac{14}{100}$ $100x = 448$, $x = 4.48$

A. 4480 **B.** 4.48 **C.** 228 **D.** 43.75

23. Ninety is what percent of 200? $\frac{90}{200} = \frac{x}{100}$ $200x = 9{,}000$ $x = 45$

A. 55% B. 40.5% (C.) 45% D. 20%

24. If y varies **directly** as x, and y = 7.5 when x = 2, find y when x = 5. $y = ax$ $7.5 = a \cdot 2$ $3.75 = a$ $y = 3.75x$ $y = 3.75 \cdot 5$ $y = 18.75$

(A.) 18.75 B. 1.33 C. 3 D. 75

25. Write the equation in **slope-intercept form**: 2x – 3y = 6 $-3y = -2x + 6$ $y = \frac{2}{3}x - 2$

A. $y = -\frac{2}{3}x - 2$ (B.) $y = \frac{2}{3}x - 2$ C. $y = \frac{2}{3}x + 2$ D. It's already in slope-intercept form

26. Identify the **slope** of the line with the equation: y – 3x = 5 $y = 3x + 5$

A. -3 (B.) 3 C. $\frac{1}{3}$ D. 5

27. Write the equation for the line that passes through (3, 2) and (4, 9). $m = \frac{9-2}{4-3} = \frac{7}{1} = 7$ $y - 2 = 7(x - 3)$ $y - 2 = 7x - 21$ $y = 7x - 19$

A. y = 7x + 2 B. y = 7x – 11 C. $y = \frac{1}{7}x + \frac{11}{7}$ (D.) y = 7x – 19

27. Write the equation in **standard form**: $y = -\frac{1}{2}x + 1$ $\left(\frac{1}{2}x + y = 1\right)2$ $x + 2y = 2$

A. $x + \frac{1}{2}y = 1$ B. $\frac{1}{2}x + y = 1$ (C.) $x + 2y = 2$ D. It's already in standard form

28. Write an equation for the line that passes through (4, -5) and is **perpendicular** to the line y = 2x + 3 $m = -\frac{1}{2}$ $y + 5 = -\frac{1}{2}(x - 4)$ $y + 5 = -\frac{1}{2}x + 2$ $y = -\frac{1}{2}x - 3$

A. $y = -\frac{1}{2}x + 7$ B. $y = \frac{1}{2}x + 3$ C. $y = 2x - 3$ (D.) $y = -\frac{1}{2}x - 3$

29. Solve: $v - 8 < 35$ $+8 \quad +8$ $v < 43$

(A.) v < 43 B. v > 27 C. v < 27 D. v > 4

30. Solve: $w + 3.81 < -14.6$ $-3.81 \quad -3.81$ $w < -18.41$

A. w < 10.79 B. w > -18.41 C. w > 10.79 (D.) w < -18.41

31. Solve: $m - \frac{3}{8} > \frac{1}{2}$ $+\frac{3}{8} \quad +\frac{3}{8}$ $m > \frac{1}{2} + \frac{3}{8}$ $m > \frac{4}{8} + \frac{3}{8}$ $m > \frac{7}{8}$

(A.) $m > \frac{7}{8}$ B. $m < \frac{7}{8}$ C. $m < \frac{1}{8}$ D. $m > \frac{1}{8}$

32. Solve: $6n \geq 5n + 19$ $n \geq 19$

A. $n \geq -19$ (B.) $n \geq 19$ C. $n \leq 19$ D. $n \leq \frac{11}{19}$

33. Solve: $3s - 12 < 2s + 10$ $s - 12 < 10$, $s < 22$

A. $s > 2$ **B.** $s > -2$ **C.** $s < 22$ **D.** $s < -22$

34. Solve: $-18 \geq 3t$ $-6 \geq t$ same as $t \leq -6$

A. $t \leq 6$ **B.** $t \geq -6$ **C.** $t \leq -6$ **D.** $t \geq 6$

35. Solve: $\frac{5}{14} > -\frac{2}{7}d \cdot \frac{-7}{2}$ $\frac{-5}{4} < d$ same as $d > \frac{-5}{4}$

A. $d < \frac{5}{4}$ **B.** $d > \frac{5}{4}$ **C.** $d < -\frac{5}{4}$ **D.** $d > -\frac{5}{4}$

36. Solve: $\frac{-3.5z}{-3.5} < \frac{42}{-3.5}$ $z > -12$

A. $z > 12$ **B.** $z < 12$ **C.** $z < -12$ **D.** $z > -12$

37. Solve: $4w - 6 > 6w - 20$ $-4w \quad -4w$ $-6 > 2w - 20$ $+20 \quad +20$ $14 > 2w$, $7 > w$ same as $w < 7$

A. $w < 7$ **B.** $w < 2$ **C.** $w < -7$ **D.** $w < -2$

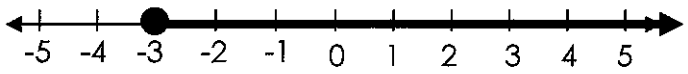
38. Solve: $-14 > 5(2m - 3) - m$ $-14 > 10m - 15 - m$, $-14 > 9m - 15$, $1 > 9m$, $\frac{1}{9} > m$ same as $m < \frac{1}{9}$

A. $m < 1$ **B.** $m < \frac{1}{9}$ **C.** $m > 1$ **D.** $m > \frac{1}{9}$

39. Solve: $8r - (5r + 4) \geq -31$ $8r - 5r - 4 \geq -31$, $3r - 4 \geq -31$, $3r \geq -27$, $r \geq -9$

A. $r \leq -9$ **B.** $r \geq -9$ **C.** $r \geq 9$ **D.** $r \leq 9$

40. The graph shows the solution set for which of the following inequalities?

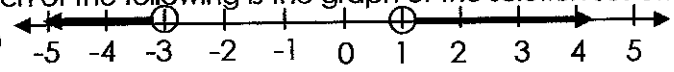


A. $x < 3$ **B.** $x \leq -3$ **C.** $x \geq -3$ **D.** $x > -3$

41. Solve: $-25 < 15x - 10 < 20$ $+10 \quad +10 \quad +10$ $\frac{-15}{15} < \frac{15x}{15} < \frac{30}{15}$ $-1 < x < 2$

A. $-1 < x < \frac{4}{3}$ **B.** $x < 2$ **C.** $-\frac{5}{3} < x < 2$ **D.** $-1 < x < 2$

42. Which of the following is the graph of the solution set of: $y<-3$ *or* $y>1$?

(A.)


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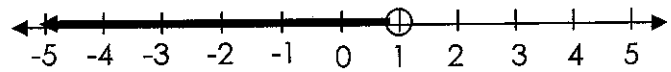

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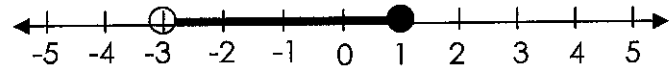

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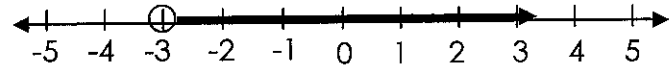
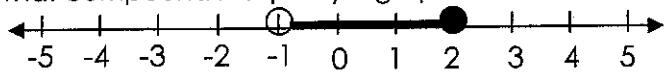


43. What compound inequality is graphed below?



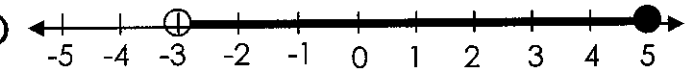
A. $-1<n<2$ **B.** $-1\leq n<2$ **C.** $n\geq -1$ or $n<2$ (D.) $-1<n\leq 2$

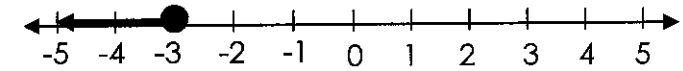
44. Which of the following is the graph of the solution set of: $-4<3t+5\leq 20$

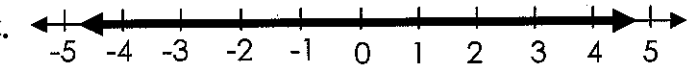
$-5 \quad -5 \quad -5$

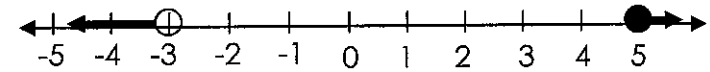
$-\frac{9}{3} < \frac{3t}{3} \leq \frac{15}{3}$

$-3 < t \leq 5$

(A.)


B.


C.


D.


45. Solve: $\frac{3|x-8|}{3}=\frac{132}{3}$ $|x-8| = 44$ $x-8=44$ or $x-8=-44$

$x=52$ $x=-36$

A. 44, -44 **B.** -52, 52 **C.** 52 (D.) -36, 52

46. Solve: $|2x+8|<4$ less than!

$-4 < 2x+8 < 4$

$-8 \quad -8 \quad -8$

$-12 < 2x < -4$

$-6 < x < -2$

(A.) $-6 < x < -2$ **B.** $x < -2$ **C.** $-2 < x < 2$ **D.** $x < -6$ or $x > -2$

47. Solve: $|2x-7|>1$ greator!

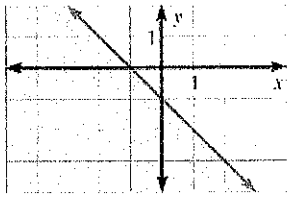
$2x-7>1$ or $2x-7<-1$

$2x>8$ $2x<6$

$x>4$ (C.) $x<3$

A. $3 < x < 4$ **B.** $x > 4$ $x < 3$ or $x > 4$ **D.** $x < -4$ or $x > 4$

48. The graph of which inequality is shown?



(A.) $y \leq -x-1$

B. $y \geq -x-1$

C. $y < -x-1$

D. $y > -x-1$

Shading is below and line is solid, so it must be $y \leq$

49. Which ordered pair is a solution of the system: $4(x + 2y = -8)$
$-4x + y = 5$

$4x + 8y = -32$
$-4x + y = 5$
$9y = -27$
$y = -3$

$x + 2(-3) = -8$
$x + -6 = -8$
$x = -2$

A. (2, -3) **B.** (-2, -3) **C.** (-3, -2) **D.** (-1. 0)

50. Find the value of x in the system: $2(x - 2y = 4)$
$3x + 4y = 2$

$2x - 4y = 8$
$3x + 4y = 2$
$5x = 10$

$x = 2$

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

51. You pay $24.50 for 10 gallons of gasoline and 1 quart of oil at a gas station. Your friend pays $22 for 8 gallons of the same gasoline and 2 quarts of the same oil. Find the cost of a gallon of gas.

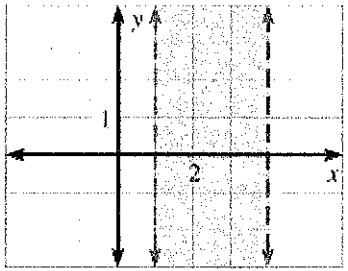
A. $5.92 **B.** $2.25 **C.** $3.88 **D.** The cost cannot be determined

Let x = cost of gas
y = cost of oil

$-2(10x + y = 24.50)$
$8x + 2y = 22$

$-20x - 2y = -49$
$8x + 2y = 22$
$-12x = -27$
$x = \$2.25$

52. Which system of inequalities is represented by the graph?



A. $x < 1, x > 4$

B. $y > 1, y < 4$

C. $x \geq 1, x \leq 4$

D. $x > 1, x < 4$

Shading to the right of 1 and to the left of 4 and both are dotted