Honors Geometry
Algebra Review Practice Test B

Name _____ Period ____

Show all work. Write the ***exact*** answers in simplest form in the blanks to the right.

Solve the equations.

1. $5x + 23 = -62$

$-23 \quad -23$

$\frac{5x}{5} = \frac{-86}{5}$ $x = -17$

$x = -17$

2. $6(x-2) + 5 = 5x - \frac{1}{2}(x+8) + 3x$

$6x - 12 + 5 = 5x - \frac{1}{2}x - 4 + 3x$

$6x - 7 = \frac{15}{2}x - 4$

$-6x \quad +4 \quad +4$

$-\frac{12}{2}x$

$\frac{2}{3} \cdot -3 = 3/2x \cdot \frac{2}{3}$ $x = -2$

$x = -2$

3. $\begin{cases} 3x + 11y = -32 \\ 4x + y = 12 \end{cases}$

$y = -4x + 12$

$y = -4(4) + 12$

$y = -16 + 12$

$y = -4$

$3x + 11(-4x + 12) = -32$

$3x - 44x + 132 = -32$

$-41x + 132 = -32$

$-132 \quad -132$

$\frac{-41x}{-41} = \frac{-164}{-41}$

$x = 4$

(4, -4)

-2, 1 4. $\begin{cases} 14x - 21y = 42 \\ 4x - 6y = 12 \end{cases}$

$-28x + 42y = -84$

$28x - 42y = 84$

$0 = 0$

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Infinitely Many Solutions

5. $\begin{cases} 40x - 30y = -440 \\ 15x + 21y = 93 \end{cases}$

$(-5, 8)$

$120x - 90y = -1320$
$-120x - 168y = -744$

$-258y = -2064$

$\frac{-258y}{-258} = \frac{-2064}{-258}$

$y = 8$

$40x - 30(8) = -440$
$40x - 240 = -440$
$+240 \quad +240$

$40x = -200$

$\frac{40x}{40} = \frac{-200}{40}$

$x = -5$

6. $\begin{cases} 4x + 7y = 11 \\ 6x - 9y = 33 \end{cases}$

$\left(\frac{55}{13}, -\frac{11}{13}\right)$

$-12x - 21y = -33$
$12x - 18y = 66$

$-39y = 33$

$\frac{-39y}{-39} = \frac{33}{-39}$

$y = -\frac{11}{13}$

$4x + 7\left(-\frac{11}{13}\right) = 11$

$4x - \frac{77}{13} = \frac{143}{13}$

$+\frac{77}{13} \quad +\frac{77}{13}$

$4x = \frac{220}{13}$

$\frac{4x}{4} = \frac{220}{13} \div 4$

$x = \frac{55}{13}$

7. $\frac{5\sqrt{384}}{2}$

$384 < 8 < 4 < 2$
$48 < 8 < 2$
$6 < 3 < 2$

$\frac{5 \cdot 8\sqrt{6}}{2}$

$20\sqrt{6}$

8. $4\sqrt{\frac{7}{14}} = 4\sqrt{\frac{1}{2}} = \frac{4}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{4\sqrt{2}}{2} = 2\sqrt{2}$

$2\sqrt{2}$

9. $\frac{\sqrt{48}}{\sqrt{72}} = \frac{\sqrt{16}}{\sqrt{9}} = \frac{\sqrt{6}}{3}$

$\frac{\sqrt{6}}{3}$

10. $2x^2 - 28x + 80 = 0$ (use the quadratic formula)

$X = 4$ or 10

$(4, 10)$

$a = 2$

$b = -28$

$c = 80$

$$x = \frac{28 \pm \sqrt{(-28)^2 - 4(2)(80)}}{2(2)}$$

$$\frac{28 \pm \sqrt{144}}{4}$$

$$\frac{28 \pm 12}{4}$$ plus / minus

$$\frac{28+12}{4} = \frac{40}{4} = 10$$

$$\frac{28-12}{4} \quad \frac{16}{4} = 4$$

11. $x^2 - 6x - 72 = 0$ (use factoring)

$X = -6$ or 12

$(-6, 12)$

$(x - 12)(x + 6) = 0$

$x = 12 \quad x = -6$

12. $8x^2 + 14x = 15$

$X = \frac{-5}{2}$ or $\frac{3}{4}$

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

$8x^2 + 14x - 15 = 0$

$x^2 + 14x - 120 = 0$

$(x + 20)(x - 6) = 0$

$(2x + 5)(4x - 3) = 0$

$2x + 5 = 0$

$2x = -5$

$x = -\frac{5}{2}$

$4x - 3 = 0$

$4x = 3$

$x = \frac{3}{4}$

13. $60x^2 = 140x + 25$

$x = -1/6$ or $5/2$

$(-1/6, 5/2)$

$60x^2 - 140x - 25 = 0$

$5(12x^2 - 28x - 5) = 0$

$5(x^2 - 28x - 60) = 0$

$5\left(x - \frac{30}{12}\right)\left(x + \frac{2}{12}\right) = 0$

$5(2x - 5)(6x + 1) = 0$

$2x - 5 = 0$

$2x = 5$

$x = \frac{5}{2}$

$6x + 1 = 0$

$6x = -1$

$x = -1/6$

14. $-3x^2 + 54 = -93$

$x = \pm 7$

$-54 \quad -54$

$-3x^2 = -147$

$\frac{-3x^2}{-3} = \frac{-147}{-3}$

$x^2 = 49$

$x = \pm 7$

15. $12x^2 = 64x$

$x = 0$ or $16/3$

$(0, 16/3)$

$12x^2 - 64x = 0$

$4x(3x - 16) = 0$

$x = 0 \quad x = \frac{16}{3}$

Use mirror to see answers

15. {0, 16/3}
14. {±7}
13. {-1/6, 5/2}
12. {-5/3, 3/4}
11. {-6, 12}
10. {4, 10}
9. √6/3
8. 2√2
7. 20√6
6. (22/13, 11/13)
5. (-5, 8)
4. Infinite solutions
3. (4, -4)
2. x = -7