Honors Geometry
Algebra Review Practice Test A

Name _____ Period ____

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

Solve the equations.

1. $4x - 12 = -72$

$+12 \quad +12$

$\frac{4x}{4} = \frac{-60}{4}$

$x = -15$

$x = -15$

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

$5x + 10 = 3x - 2x - 6 - 4x$

$5x + 10 = -3x - 6$

$+3x \quad -10 \quad +3x \quad -10$

$\frac{8x}{8} = \frac{-16}{8}$

$x = -2$

$x = -2$

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

$-5x - 3y = 5$

$-y = 10$

$y = -10$

$5x + 3(-10) = -5$

$5x - 30 = -5$

$+30 \quad +30$

$\frac{5x}{5} = \frac{25}{5}$

$x = 5$

$(5, -10)$

4. $\begin{cases} 12x + 20y = 16 \\ 27x + 45y = 54 \end{cases}$

$-108x - 180y = -144$

$108x + 180y = 216$

$0 = 72$

No solution

No Solution

5. $\begin{cases} 9x-3y=-15 \\ x+2y=-11 \end{cases}$

$x = -2y - 11$

$x = -2(-4) - 11$

$x = 8 - 11$

$x = -3$

$9(-2y-11) - 3y = -15$

$-18y - 99 - 3y = -15$

$-21y - 99 = -15$

$+99 \quad +99$

$-21y = 84$

$\frac{-21y}{-21} = \frac{84}{-21}$

$y = -4$

$(-3, -4)$

6. $\begin{cases} 6x+7y=12 \\ 4x-14y=28 \end{cases}$

$12x + 14y = 24$

$\frac{16x}{16} = \frac{52}{16}$

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

$4\left(\frac{13}{4}\right) - 14y = 28$

$13 - 14y = 28$

$-13 \quad -13$

$\frac{-14y}{-14} = \frac{15}{-14}$

$y = -\frac{15}{14}$

$\left(\frac{13}{4}, -\frac{15}{14}\right)$

7. $2\sqrt{360}$

36×10

$6 \times 6 \times 2 \times 5$

$12\sqrt{10}$

8. $\sqrt{\frac{6}{27}} = \sqrt{\frac{2}{9}} = \frac{\sqrt{2}}{3}$

$\sqrt{2}/3$

9. $\frac{12}{\sqrt{60}} \cdot \frac{\sqrt{60}}{\sqrt{60}} = \frac{12\sqrt{60}}{60} = \frac{\sqrt{60}}{5} = \frac{2\sqrt{15}}{6}$

$3 \times 2 \times 10 \times 2 \times 3$

$\frac{2\sqrt{15}}{5}$

10. $x^2 - 12x + 20 = 0$ (use the quadratic formula)

$X = 2$ or 10

$a = 1$

$b = -12$

$c = 20$

$$\frac{12 \pm \sqrt{(-12)^2 - 4(1)(20)}}{2(1)}$$

$$\frac{12 \pm \sqrt{144 - 80}}{2}$$

$$\frac{12 \pm \sqrt{64}}{2} = \frac{12 \pm 8}{2} \rightarrow \frac{12+8}{2} = \frac{20}{2} = 10$$

$$\searrow \frac{12-8}{2} = \frac{4}{2} = 2$$

11. $x^2 - 2x - 24 = 0$ (use factoring)

$X = -4$ or $X = 6$

$(x-6)(x+4) = 0$

$x = 6 \quad x = -4$

12. $30x^2 - 30 = -25x$

$+25x \quad +25x$

$30x^2 + 25x - 30 = 0$

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

$5(x^2 + 5x - 36) = 0$

$5(x + \frac{9}{6})(x - \frac{4}{6})$

$5(x + \frac{3}{2})(x - \frac{2}{3})$

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

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

$2x + 3 = 0$

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

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

$3x - 2 = 0$

$\frac{3x}{3} = \frac{2}{3}$

$x = \frac{2}{3}$

13. $24x^2 + 225 = 154x$

$X = \frac{9}{4}$ or $\frac{25}{6}$

$-154x \quad -154x$

$24x^2 - 154x + 225 = 0$

$$x = \frac{154 \pm \sqrt{(-154)^2 - 4(24)(225)}}{2(24)}$$

$$\frac{154 \pm \sqrt{2,116}}{48} = \frac{154 \pm 46}{48}$$

plus $\frac{200}{48} = \frac{50}{12} = \frac{25}{6}$

minus $\frac{108}{48} = \frac{27}{12} = \frac{9}{4}$

14. $5x^2 - 8 = 172$

$X = \pm 6$

$+8 \quad +8$

$\frac{5x^2}{5} = \frac{180}{5}$

$x^2 = 36$

$x = \pm 6$

Use mirror to see answers

15. $8x^2 = 32x$

$X = 0$ or 4

$-32x \quad -32x$

$8x^2 - 32x = 0$

$8x(x - 4) = 0$

$x = 0 \quad x = 4$

1. $x = -5$
2. $(2, -10)$
3. NO SOLUTIONS
4. $(-3, -4)$
5. $(13/4, -12/14)$
6. $15\sqrt{10}$
7. $(4\sqrt{5})/3$
8. $(5\sqrt{12})/2$
9. $\{5, 10\}$
10. $\{-4, 6\}$
11. $\{-3/5, 5/3\}$
12. $\{6, 32/6\}$
13. $\{+6\}$
14. $\{0, 4\}$