PRE-AP Geometry Required Algebra Skills Name *Key*

Show work. Date _____ Period _____

A list of answers will not be accepted.

Simplify.

1. $(x + 4)(2x - 1)$

$2x^2 + 8x - x - 4$

$2x^2 + 7x - 4$

	x	$+4$
$2x$	$2x^2$	$8x$
-1	$-1x$	-4

2. $3(y - 4)(y + 2) + (2y - 1)(y + 8)$

$3(y^2 - 4y + 2y - 8)$

$3y^2 - 12y + 6y - 24 + 2y^2 + 15y - 8$

$5y^2 + 9y - 32$

$2y^2 - y + 16y - 8$

-21
-12
9

Solve each system. Write each answer as an ordered pair.

3. $x + y = 3$
   $x - y = 5$

$2x = 8$

$x = 4$

$-y = 5$

$y = -1$

$(4, -1)$

4. $2x + 2y = -4$
   $-x + 3y = 6$

$-2x + 6y = 12$

$8y = 8$

$y = 1$

$2x + 2(1) = -4$

$2x + 2 = -4$

$2x = -6$

$x = -3$

$(-3, 1)$

5. $5x + 7y = 1$
   $4x - 2y = 16$

$-2y = -4x + 16$

$y = 2x - 8$

$5x + 7(2x - 8) = 1$

$5x + 14x - 56 = 1$

$19x = 57$

$x = 3$

$(3, -2)$

$5(3) + 7y = 1$

$15 + 7y = 1$

$-15 \quad -15$

$7y = -14$

$y = -2$

6. $x + 2y = 5$
   $-1(x - y = -1)$

$-x + y = 1$

$3y = 6$

$y = 2$

$x + 2(2) = 5$

$x + 4 = 5$

$x = 1$

$(1, 2)$

7. $3x - 6y = -3$
   $2x - 3 = y + 3$

$-y - y$

$3x - 6y = -3$

$2x - y = 3$

$-y = -2x + 3$

$y = 2x - 3$

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

$3x - 12x + 18 = -3$

$-9x + 18 = -3$

$-18 \quad -18$

$-9x = -21$

$x = 21/9$

$x = 7/3$

$y = 5/3$

$3(7/3) - 6y = -3$

$7 - 6y = -3$

$-6y = -10$

$-6 \quad -6$

$y = 5/3$

$(7/3, 5/3)$

8. $8x - 5y = 14$
   $5(10x - 2y = 9)$

$16x - 10y = 28$

$-50x + 10y = -45$

$-34x = -17$

$-34 \quad -34$

$x = 1/2$

$8(1/2) - 5y = 14$

$4 - 5y = 14$

$-4 \quad -4$

$-5y = 10$

$y = -2$

$(1/2, -2)$

↓ Look up before geo. Find notes on how to do

Solve each equation by factoring.

9. $c^2 - 3c = 10$

$c\ \ c^2 - 3c - 10 = 0$

	c^2	$-5c$
c		
$+2$	$2c$	-10

Look up

-10, $-5c$, $2c$, $-3c$

$(c-5)(c+2)$ or $c=5$, $c=-2$

10. $4z^2 - 9 = 0$ Difference of squares

$(2z+3)(2z-3)$

$2z+3=0$, $2z=-3$, $z=-3/2$

$2z-3=0$, $2z=3$, $z=3/2$

11. $a^2 - a - 12 = 0$

$a\ \ -4$

	a^2	$-4a$
a		
$+3$	$3a$	-12

-12, $-4a$, $+3a$, $-a$

$(a-4)(a+3)$ $a=4$, $a=-3$

12. $n^2 + 10n + 21 = 0$

$n+3$

	n^2	$3n$
n		
$+7$	$7n$	21

21, $3n$, $7n$, $10n$

$(n+3)(n+7)$ $n=-3$, $n=-7$

ac

13. $8y^2 = 32$

$8y^2 - 32$

$8(y^2 - 4)$

$8(y+2)(y-2)$ $y=-2$, $y=2$

14. $2x^2 - 7x = 15$

$2x^2 - 7x - 15 = 0$

$x\ \ -5$

	$2x^2$	$-10x$
$2x$		
$+3$	$+3x$	-15

-30, $-10x$, $+3x$, $-7x$

$(x-5)(2x+3)$ $x=5$, $x=-3/2$

$2x+3=0$, $2x=-3$, $x=-3/2$

Simplify each radical expression. (not a decimal)

15. $\sqrt{27}$ $\sqrt{9 \cdot 3}$

$3\sqrt{3}$

16. $\sqrt{150}$

$6\overline{)150}$ 25, $\frac{12}{3}$

$\sqrt{6 \cdot 25}$

$5\sqrt{6}$

17. $\sqrt{45}$

$\sqrt{5 \cdot 9}$

$3\sqrt{5}$

18. $\sqrt{80}$

$\sqrt{16 \cdot 5}$

$4\sqrt{5}$

19. $\sqrt{\frac{16}{9}}$

$\pm 4/3$

20. $\sqrt{121}$

± 11

21. $\sqrt{48}$ $\sqrt{16 \cdot 3}$

$4 \cdot 12$

$16 \cdot 3$

$4\sqrt{3}$

22. $2\sqrt{8}$

$2 \cdot 2\sqrt{4 \cdot 2}$

~~$8\sqrt{2}$~~

$4\sqrt{2}$