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Date _____
Geometry

Factoring Trinomials and Solving Quadratic Equations

1. $x^2 + 4x - 12$ ^{1,12}
^{2,6}
^{3,4}
 $(x+6)(x-2)$

2. $y^2 + 3y + 2$ ^{1,2}
 $(y+2)(y+1)$

3. $m^2 - 8m + 15$ ^{1,15}
^{3,5}
 $(m-5)(m-3)$

4. $x^2 - 8x + 20$ ^{1,20}
^{2,10}
^{4,5}
 $(x-10)(x+2)$

5. $y^2 + 5y - 14$ ^{1,14}
^{2,7}
 $(y+7)(y-2)$

6. $x^2 + x - 12$ ^{1,12}
^{2,6}
^{3,4}
 $(x+4)(x-3)$

7. $x^2 - 3x - 10$ ^{1,10}
^{2,5}
 $(x-5)(x+2)$

8. $x^2 - 7x + 12$ ^{1,12}
^{2,6}
^{3,4}
 $(x-4)(x-3)$

9. $x^2 - 9x + 20$ ^{1,20}
^{2,10}
^{4,5}
 $(x-5)(x-4)$

10. $x^2 - 9x - 36$ ^{1,36}
^{2,18}
^{3,12}
^{4,9}
 $(x-12)(x+3)$ ^{6,6}

Solve the following equations for x:

11. $x^2 - 5x = 6$

$-6-6$ $\begin{matrix} 1/6 \\ 2/3 \end{matrix}$
 $x^2 - 5x - 6 = 0$
 $(x-6)(x+1) = 0$
 $x-6=0$ $x+1=0$
 $+6+6$ $-1-1$
 $x=6$ $x=-1$

13. $x^2 = 3x + 18$

$\begin{matrix} 1/18 \\ 2/9 \\ 3/6 \end{matrix}$
 $-3x-18$ $-3x-18$
 $x^2 - 3x - 18 = 0$
 $(x-6)(x+3) = 0$
 $x-6=0$ $x+3=0$
 $+6+6$ $-3-3$
 $x=6$ $x=-3$

15. $x^2 - 7x = 3x - 16$

$\begin{matrix} 1/16 \\ 2/8 \\ 4/4 \end{matrix}$
 $-3x+16$ $-3x+16$
 $x^2 - 10x + 16 = 0$
 $(x-8)(x-2) = 0$
 $x-8=0$ $x-2=0$
 $+8+8$ $+2+2$
 $x=8$ $x=2$

17. $x(x-2) = 3(x+8)$

$\begin{matrix} 1/24 \\ 2/12 \\ 3/8 \\ 4/6 \end{matrix}$
 $x^2 - 2x = 3x + 24$
 $-3x-24$ $-3x-24$
 $x^2 - 5x - 24 = 0$
 $(x-8)(x+3) = 0$
 $x-8=0$ $x+3=0$
 $+8+8$ $-3-3$
 $x=8$ $x=-3$

19. $(x-2)(x+3) = 3x+2$

$\begin{matrix} 1/8 \\ 2/4 \end{matrix}$

	$x-2$
x^2	$-2x$
$+3x$	-6

 $x^2 + x - 6 = 3x + 2$
 $-3x-2$ $-3x-2$
 $x^2 - 2x - 8 = 0$
 $(x-4)(x+2) = 0$
 $x-4=0$ $x+2=0$
 $+4+4$ $-2-2$
 $x=4$ $x=-2$

12. $x^2 + 4x = 45$

$\begin{matrix} 1/45 \\ 3/15 \\ 5/9 \end{matrix}$
 $-45-45$
 $x^2 + 4x - 45 = 0$
 $(x+9)(x-5) = 0$
 $x+9=0$ $x-5=0$
 $-9-9$ $+5+5$
 $x=-9$ $x=5$

14. $x^2 = 8x + 33$

$\begin{matrix} 1/33 \\ 3/11 \end{matrix}$
 $-8x-33$ $-8x-33$
 $x^2 - 8x - 33 = 0$
 $(x-11)(x+3) = 0$
 $x-11=0$ $x+3=0$
 $+11+11$ $-3-3$
 $x=11$ $x=-3$

16. $x^2 + 5x = 8x + 10$

$\begin{matrix} 1/10 \\ 2/5 \end{matrix}$
 $-8x-10$ $-8x-10$
 $x^2 - 3x - 10 = 0$
 $(x-5)(x+2) = 0$
 $x-5=0$ $x+2=0$
 $+5+5$ $-2-2$
 $x=5$ $x=-2$

18. $x(x+7) = 3(x+7)$

$\begin{matrix} 1/21 \\ 3/7 \end{matrix}$
 $x^2 + 7x = 3x + 21$
 $-3x-21$ $-3x-21$
 $x^2 + 4x - 21 = 0$
 $(x+7)(x-3) = 0$
 $x+7=0$ $x-3=0$
 $-7-7$ $+3+3$
 $x=-7$ $x=3$

20. $(x+3)(x+3) = 36$

$\begin{matrix} 1/27 \\ 3/9 \end{matrix}$

	$x+3$
x^2	$+3x$
$+3x$	$+9$

 $x^2 + 6x + 9 = 36$
 $-36-36$
 $x^2 + 6x - 27 = 0$
 $(x+9)(x-3) = 0$
 $x+9=0$ $x-3=0$
 $-9-9$ $+3+3$
 $x=-9$ $x=3$