Name: \_\_\_\_

## Factoring to Determine Roots

Factor each quadratic, and identify t	he roots. If the problem cannot be fac	tored, write "Not Factorable."
1. $f(x) = 2x^2 - 12x - 14$	he roots. If the problem cannot be factorial for the factorial for the problem for the factorial for	3. $h(x) = 4x^2 - 9$
Factored Form:	Factored Form:	Factored Form:
$\frac{f(x)}{\text{Roots:}}$	$\frac{g(x)}{\text{Roots:}}$	$\frac{h(x)}{\text{Roots:}}$
<i>x</i> = <i>x</i> =	<i>x</i> = <i>x</i> =	<i>x</i> = <i>x</i> =
Roots as points:	Roots as points:	Roots as points:
( ,0) ( ,0)	( ,0) ( ,0)	( ,0) ( ,0)
:		6. $m(x) = -x^2 - x + 20$
4. $j(x) = -3x^2 + 10x + 7$	5. $k(x) = x^2 + 6x + 9$	6. m(x) = x x + 20
Factored Form:	Factored Form:	Factored Form:
Roots:	Roots:	Roots:
Roots as points:	Roots as points:	Roots as points:
(,)(,)	(,)(,)	

7. $n(x) = 2x^2 - 20x + 50$	8. $p(x) = 4x^2 + 3x - 2$	9. $r(x) = -x^2 - 2x - 1$
Factored Form:	Factored Form:	Factored Form:
Roots:	Roots:	Roots:
Roots as points:	Roots as points:	Roots as points:
10. $t(x) = 2x^2 + 8x - 24$	11. $v(x) = -5x^2 + 8x$	12. $w(x) = x^2 - 6x + 7$
Factored Form:	Factored Form:	Factored Form:
Roots:	Roots:	Roots:
Roots as points:	Roots as points:	Roots as points:
		$\frac{15}{15} h(x) = 2x^2 + 6x = 2$
13. $f(x) = 2x^2 - 11x - 21$	14. $g(x) = x^2 - 6x - 5$	15. $h(x) = -3x^2 + 6x - 3$
Factored Form:	Factored Form:	Factored Form:
Roots:	Roots:	Roots:
Roots as points:	Roots as points:	Roots as points:

	Factoring to Determine Roots Answe	rs	
1. Factored Form:	2. Factored Form:	3. Factored Form:	
f(x) = 2(x+1)(x-7)	g(x) = (x+8)(x-1)	$h(x) = 4\left(x + \frac{3}{2}\right)\left(x - \frac{3}{2}\right)$	
Roots: $x = -1$ or $x = 7$	Roots: $x = -8 \text{ or } x = 1$	Roots: $x = -\frac{3}{2}$ or $x = \frac{3}{2}$	
Roots as points: $(-1, 0)$ or $(7, 0)$	Roots as points: (-8,0) (1,0)	Roots as points: $\left(-\frac{3}{2},0\right)$ $\left(\frac{3}{2},0\right)$	
4. Factored Form:	5. Factored Form:	6. Factored Form:	
Not Factorable	k(x) = (x+3)(x+3)	m(x) = -(x+5)(x-4)	
	Roots: $x = -3$	Roots: $x = -5$ or $x = 4$	
	Roots as points: $(-3, 0)$	Roots as points: $(-5,0)$ $(4,0)$	
7. Factored Form:	8. Factored Form:	9. Factored Form:	
n(x) = 2(x-5)(x-5)	Not Factorable	r(x) = -(x+1)(x+1)	
Roots: $x = 5$		Roots: $x = -1$	
Roots as points: (5,0)		Roots as points: $(-1, 0)$	
10. Factored Form:	11. Factored Form:	12. Factored Form:	
t(x) = 2(x+6)(x-2)	$v(x) = -5x\left(x - \frac{8}{5}\right)$	Not Factorable	
Roots: $x = -6$ or $x = 2$	Roots: $x = 0 \text{ or } x = \frac{8}{5}$		
Roots as points: $(-6, 0)$ $(2, 0)$	Roots as points: $(0,0)$ $\left(\frac{8}{5},0\right)$		
13. Factored Form:	14. Factored Form:	15. Factored Form:	
$f(x) = 2\left(x + \frac{3}{2}\right)(x - 7)$	Not Factorable	h(x) = -3(x-1)(x-1)	
Roots: $x = -\frac{3}{2}$ or $x = 7$		Roots: $x = 1$	
Roots as points: $\left(\frac{3}{2}, 0\right)$ (7, 0)		Roots as points: (1,0)	

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	Factoring to Determine Roots Answ		
1. Factored Form:	2. Factored Form:	3. Factored Form:	
f(x) = 2(x+1)(x-7)	g(x) = (x+8)(x-1)	$h(x) = 4\left(x + \frac{3}{2}\right)\left(x - \frac{3}{2}\right)$	
Roots: $x = -1$ or $x = 7$	Roots: $x = -8$ or $x = 1$	Roots: $x = -\frac{3}{2}$ or $x = \frac{3}{2}$	
Roots as points: $(-1,0)$ or $(7,0)$	Roots as points: $(-8,0)$ $(1,0)$	Roots as points: $\left(-\frac{3}{2},0\right)$ $\left(\frac{3}{2},0\right)$	
4. Factored Form:	5. Factored Form:	6. Factored Form:	
Not Factorable	k(x) = (x+3)(x+3)	m(x) = -(x+5)(x-4)	
	Roots: $x = -3$	Roots: $x = -5$ or $x = 4$	
	Roots as points: $(-3,0)$	Roots as points: $(-5,0)$ $(4,0)$	
7. Factored Form:	8. Factored Form:	9. Factored Form:	
n(x) = 2(x-5)(x-5)	Not Factorable	r(x) = -(x+1)(x+1)	
Roots: $x = 5$		Roots: $x = -1$	
Roots as points: (5,0)		Roots as points: $(-1, 0)$	
10. Factored Form:	11. Factored Form:	12. Factored Form:	
t(x) = 2(x+6)(x-2)	$v(x) = -5x\left(x - \frac{8}{5}\right)$	Not Factorable	
Roots: $x = -6 \text{ or } x = 2$	Roots: $x = 0 \text{ or } x = \frac{8}{5}$		
Roots as points: $(-6, 0)$ $(2, 0)$	Roots as points: $(0,0)$ $\left(\frac{8}{5},0\right)$		
13. Factored Form:	14. Factored Form:	15. Factored Form:	
$f(x) = 2\left(x + \frac{3}{2}\right)(x - 7)$	Not Factorable	h(x) = -3(x-1)(x-1)	
Roots: $x = -\frac{3}{2}$ or $x = 7$		Roots: $x = 1$	
Roots as points: $\left(\frac{3}{2}, 0\right)$ (7, 0)		Roots as points: (1,0)	