Solving:

- Factorising
- Formula
- Completing the square
- Drawing a graph

Quadratic Equations
$ax^2 + bx + c$

Factorising:

easy... $x^2 + 7x + 12 = 0$

$(x + 3)(x + 4) = 0$

$x = -3$ or $x = -4$

brackets

... more difficult!

multiply

6: 1x6, 2x3

$3x^2 - 5x + 2$

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

$3x(x - 1) - 2(x - 1)$

$(3x - 2)(x - 1)$

The formula:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Completing the square:

$x^2 + 4x - 3 = 0$

half of 4x

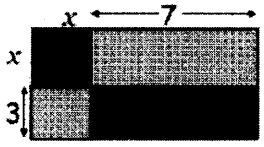
$(x + 2)^2 - 4 - 3 = 0$

$(x + 2)^2 - 7 = 0$

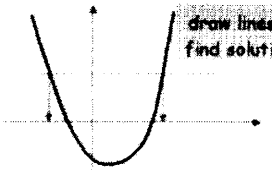
subtract 2^2

$x + 2 = \pm\sqrt{7}$

$x = \pm\sqrt{7} - 2$



Graphs:



draw lines to find solutions

Parabola - u shaped graph

Difference of Two Squares:

$x^2 - 16$

$(x - 4)(x + 4)$

x squared subtract 4 squared

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Multi-Step Equations

Date_____ Period____

Solve each equation.

1) $-20 = -4x - 6x$

2) $6 = 1 - 2n + 5$

3) $8x - 2 = -9 + 7x$

4) $a + 5 = -5a + 5$

5) $4m - 4 = 4m$

6) $p - 1 = 5p + 3p - 8$

7) $5p - 14 = 8p + 4$

8) $p - 4 = -9 + p$

9) $-8 = -(x + 4)$

10) $12 = -4(-6x - 3)$

11) $14 = -(p - 8)$

12) $-(7 - 4x) = 9$

13) $-18 - 6k = 6(1 + 3k)$

14) $5n + 34 = -2(1 - 7n)$

15) $2(4x - 3) - 8 = 4 + 2x$

16) $3n - 5 = -8(6 + 5n)$

17) $-(1 + 7x) - 6(-7 - x) = 36$

18) $-3(4x + 3) + 4(6x + 1) = 43$

19) $24a - 22 = -4(1 - 6a)$

20) $-5(1 - 5x) + 5(-8x - 2) = -4x - 8x$

Integrated Math Name _____

Solve by factoring.

1. $x^2 - 24x + 144 = 0$	2. $x^2 - 20x + 100 = 0$
3. $64x^2 + 16x + 1 = 0$	4. $x^2 - 49 = 0$
5. $x^2 + 6x - 55 = 0$	6. $9x^2 - 49 = 0$
7. $81x^2 - 1 = 0$	8. $9x^2 + 24x + 16 = 0$
9. $x^2 - 64 = 0$	10. $x^2 - 5x - 84 = 0$
11. $49x^2 - 168x + 144 = 0$	12. $25x^2 - 60x + 36 = 0$
13. $x^2 - x - 110 = 0$	14. $x^2 - 16 = 0$

Integrated Math Name _____

15. $25x^2 - 36 = 0$	16. $x^2 - 14x + 24 = 0$
17. $49x^2 - 144 = 0$	18. $x^2 + 7x + 10 = 0$
19. $x^2 - 18x + 81 = 0$	20. $25x^2 - 120x + 144 = 0$
21. $49x^2 - 1 = 0$	22. $25x^2 - 144 = 0$
23. $x^2 + 2x + 1 = 0$	24. $x^2 - 14x + 33 = 0$
25. $x^2 - 81 = 0$	26. $x^2 - 23x + 132 = 0$
27. $x^2 - 144 = 0$	28. $81x^2 - 100 = 0$
29. $x^2 - 8x + 7 = 0$	30. $36x^2 + 60x + 25 = 0$

 Name_____

Rational Equations

Date_____ Period____

Solve each equation. Remember to check for extraneous solutions.

1) $\frac{1}{4x} - \frac{1}{4} = \frac{1}{2}$

2) $\frac{5v - 5}{v} - \frac{5v + 15}{v} = 1$

3) $\frac{5a + 20}{6a} + \frac{1}{a} = \frac{3}{2a}$

4) $\frac{2}{m^2} = \frac{1}{m} + \frac{1}{m^2}$

5) $1 + \frac{4}{r - 2} = \frac{5}{r - 2}$

6) $\frac{n - 1}{2n} = 1 + \frac{1}{2n}$

7) $\frac{5}{k} = \frac{1}{k} - 1$

8) $\frac{5}{b} = \frac{1}{b} + 4$

Kuta Software - Infinite Algebra 2 Name_____

Square Root Equations

Date_____ Period____

Solve each equation. Remember to check for extraneous solutions.

1) $3 = \sqrt{b - 1}$

2) $2 = \sqrt{\frac{x}{2}}$

3) $\sqrt{-8 - 2a} = 0$

4) $\sqrt{x + 4} = 0$

5) $5 = \sqrt{r - 3}$

6) $\sqrt{2m - 6} = \sqrt{3m - 14}$

7) $\sqrt{8k} = k$

8) $\sqrt{9 - b} = \sqrt{1 - 9b}$

9) $\sqrt{3 - 2x} = \sqrt{1 - 3x}$

10) $\sqrt{3k - 11} = \sqrt{5 - k}$

11) $(20-r)^{\frac{1}{2}} = r$

12) $(6b)^{\frac{1}{2}} = (8-2b)^{\frac{1}{2}}$

13) $\sqrt{56-r} = r$

14) $\sqrt{-10+7p} = p$

15) $(18-n)^{\frac{1}{2}} = \left(\frac{n}{8}\right)^{\frac{1}{2}}$

16) $\sqrt{2v-7} = v-3$

17) $-3 = (37-3n)^{\frac{1}{2}} - n$

18) $(-3-4x)^{\frac{1}{2}} - (-2-2x)^{\frac{1}{2}} = 1$

19) $x = 5 + (3x-11)^{\frac{1}{2}}$

20) $2 = \sqrt{3b-2} - \sqrt{10-b}$