Solving Quadratic Equations Review ws

Key

Write the equation in standard form. Identify a, b, and c and then find the discriminant. Determine if the equation has one real, two real or no real solutions.

1. $2x^2 - 4x + 2 = 0$

a=2, b=-4, c=2

DISC = 0

1 real sol

2. $-5x^2 + 7x - 13 = 2$

$-5x^2 + 7x - 15 = 0$

a=-5, b=7, c=-15

DISC = -251

No real sol

3. $4x^2 - 8 = 6x^2 - 3x$

$2x^2 - 3x + 8$ or $-2x^2 + 3x - 8$

$2x^2 - 3x - 8$

a=2, b=-3 or 3, c=-8, -8

DISC = -55

No real sol

4. $-2x = x^2 + 3x - 7$

$x^2 + 5x - 7$

a=1, b=5, c=-7

DISC = 53

2 real sol

Use the quadratic formula to solve the equation. Answers should be in **exact form** (no decimals).

5. $x^2 + 4x = 2$

$-2 \pm \sqrt{6} = x$

6. $2x^2 - 8x = 1$

$\frac{4 \pm 3\sqrt{2}}{2} = x$

7. $4x^2 + 2x = -2x - 1$

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

8-19. Solve each quadratic equation using any method you choose.

8. $2(x - 6)^2 = 32$

$x = 10, 2$

9. $3x^2 + 2x = 0$

$x = 0, -\frac{2}{3}$

10. $x^2 + 12 = 13$

$x = \pm 1$

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

$x = 3, 1$

12. $3x^2 + 2x = x^2 + x + 1$

$x = -1, \frac{1}{2}$

13. $5x^2 - 9x = -3$

$x = \frac{9 \pm \sqrt{21}}{10}$

14. $x^2 - 24 = 0$

$x = \pm 2\sqrt{6}$

15. $-4t^2 + 16t = 0$

$-4t(t - 4) = 0$

$-4t = 0 \quad t - 4 = 0$

$t = 0 \quad t = 4$

16. $-x^2+3x+4=-2$

$x=\frac{3\pm\sqrt{33}}{2}$

17. $4(x-5)^2-2=62$

$\frac{4(x-5)^2}{4}=\frac{64}{4}$

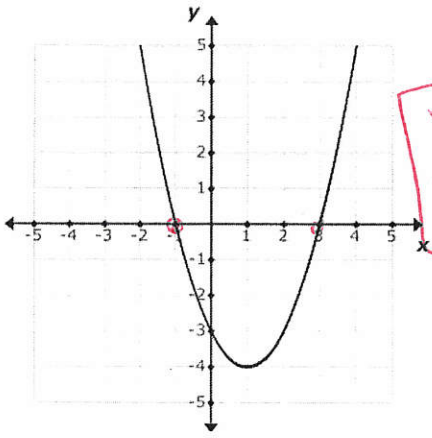
$\sqrt{(x-5)^2}=\sqrt{16}$

$x-5=\pm4+5$

$+5$

$x=9,1$

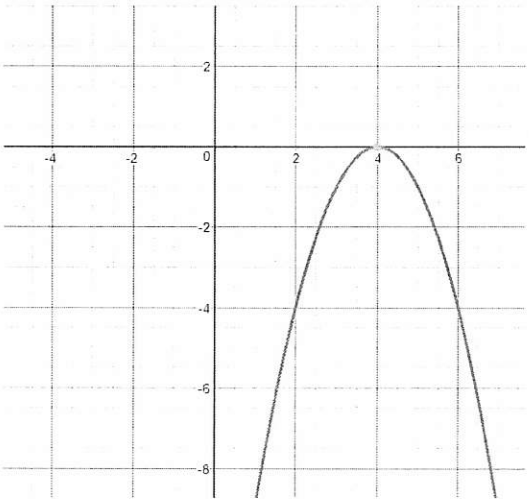
18.



$x=-1$

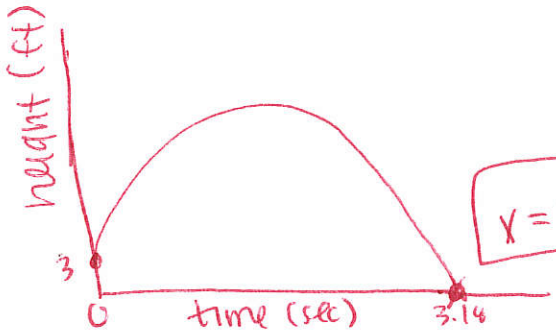
$x=3$

19.



$x=4$

20. A contestant tosses a horseshoe from one pit to another with an initial vertical velocity of 50 feet per second. The horseshoe is released 3 feet above the ground. Use the model $h=-16t^2+50t+3$ where h is the height (in feet) and t is the time (in seconds) to tell how long the horseshoe was in the air. Round to the nearest hundredth (sketch a graph to help visualize if necessary!).



$x=3.18$ seconds

$\frac{-50\pm\sqrt{50^2-4(-16)(3)}}{2(-16)}$

$\frac{-50\pm\sqrt{2692}}{-32}$

21. For the following problem $2x^2-10x+8=0$

a) Solve the equation by factoring:

$x=4,1$

b) The quadratic formula:

$x=4,1$

c) Explain what you notice:

they're the same!