

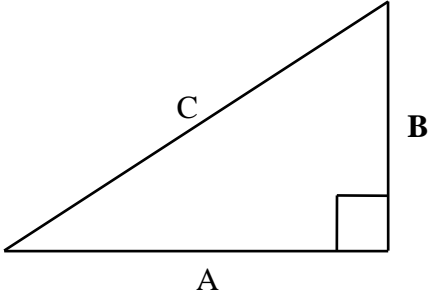
Quadratic Equations

Pythagorean Theorem

- Carl, who is 5'8" tall, is standing 8 feet from a pole which is 20 feet high. He wants to hit the top of the pole with a ball. How far will the ball have to travel to reach the top of the pole?
- On a bicycle trip, Gina rode her bike up a steep hill. She measured her distance to be 2.5 miles. She knew that the horizontal distance was 1.9 miles. How high was the hill?

3) Solve for the missing side:

- | | |
|--|---|
| a) $A = 2$
$B = 2$
$C = \underline{\hspace{2cm}}$ | b) $A = 4$
$B = 2$
$C = \underline{\hspace{2cm}}$ |
| c) $A = 4$
$B = \underline{\hspace{2cm}}$
$C = 5$ | d) $A = 5$
$B = \underline{\hspace{2cm}}$
$C = 12$ |
| e) $A = \underline{\hspace{2cm}}$
$B = 6$
$C = 25$ | f) $A = \underline{\hspace{2cm}}$
$B = 15$
$C = 20$ |



Quadratic Equations

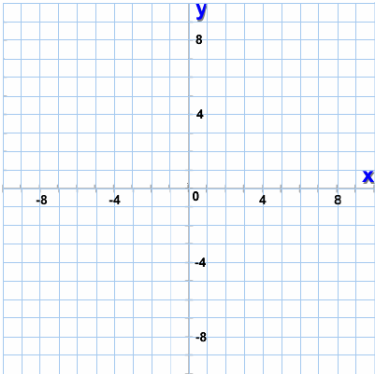
4) Solve the following quadratic equations:

- | | |
|---|---|
| a) $6x^2 = 37; x = \underline{\hspace{2cm}}$ | b) $-8x^2 = -72; x = \underline{\hspace{2cm}}$ |
| c) $-7x^2 = 7; x = \underline{\hspace{2cm}}$ | d) $2x^2 - 3 = 39; x = \underline{\hspace{2cm}}$ |
| e) $-\frac{1}{2}x^2 + 3 = -5; x = \underline{\hspace{2cm}}$ | f) $\frac{3}{4}x^2 + 7 = 4; x = \underline{\hspace{2cm}}$ |

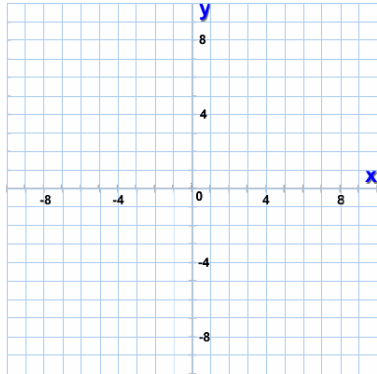
Graphing Parabolas

5) Graph the following quadratic equations:

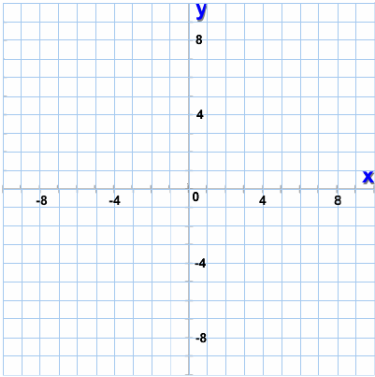
a) $y = x^2 - 2$



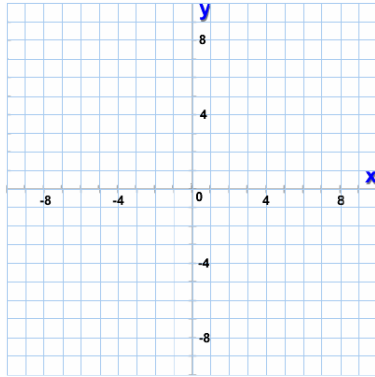
b) $y = -x^2 + 3$



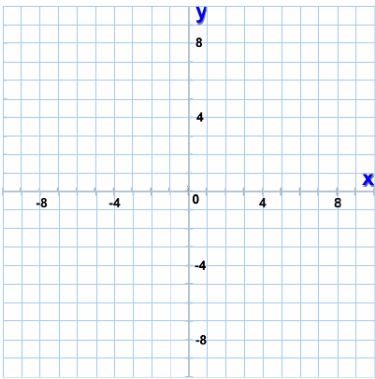
c) $y = 2x^2 + 2x - 2$



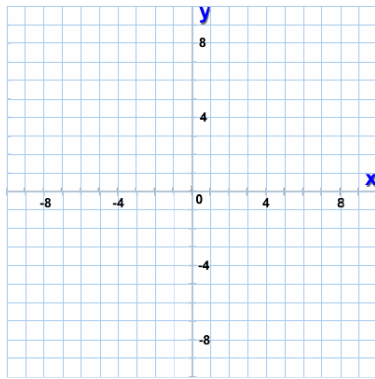
d) $y = -\frac{1}{2}x^2 + 2x - 2$



e) $y = -\frac{1}{2}x^2 - x + 2$



f) $y = -2x^2 - 4x - 2$



Quadratic Formula

6) Using the quadratic formula solve the following:

a) $7x^2 - 5x - 3 = 0$

b) $-2x^2 - x + 2 = 0$

c) $7x^2 - 6x + 4 = 0$

d) $-6x^2 + 7x - 2 = 0$

e) $3x^2 + 7x + 2 = 0$

f) $x^2 - 2x + 1 = 0$

7) The height (**h**) of a baseball thrown into the air is modeled over time (**t**, in seconds) by,

$h = -16t^2 + 45t + 0.001$.

a) How long is the baseball in the air? $t =$ _____

b) If the baseball had a horizontal velocity of 23 feet per second, how far did it travel?
