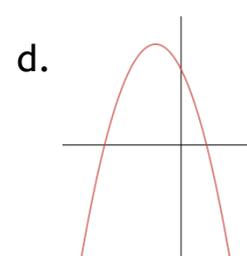
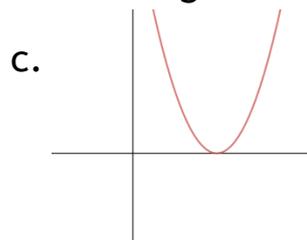
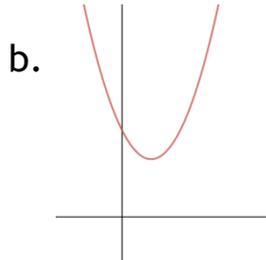
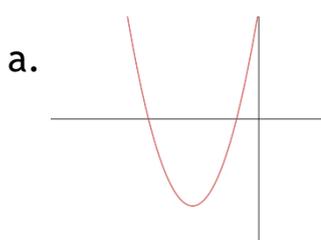


$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Quadratic Formula and The Discriminant

1. State the nature of the roots for each of the following curves:



2. State the nature of the roots for the following curves:

a. $y = x^2 + 5x + 3$

b. $y = x^2 + 8x + 3$

c. $y = x^2 + 8x + 10$

d. $y = x^2 - 8x - 1$

e. $y = x^2 - 12x - 36$

f. $y = 2x^2 - 8x - 1$

g. $y = 3x^2 + 5x + 7$

h. $y = 2x^2 - 7x + 6$

i. $y = 4x^2 - 12x + 9$

3. Find the roots of the following curves:

a. $y = x^2 + 8x + 15$

b. $y = x^2 + 8x + 12$

c. $y = x^2 - 8x + 12$

d. $y = x^2 + 8x - 20$

e. $y = x^2 + x - 20$

f. $y = x^2 - 5x - 36$

g. $y = 2x^2 + 7x + 3$

h. $y = 2x^2 + 5x - 42$

i. $y = 2x^2 - 4x - 3$

4. Find the roots of the following curves (give your answer to 2 significant figures):

a. $y = x^2 + 7x + 10$

b. $y = x^2 + 6x + 7$

c. $y = x^2 + 5x + 3$

d. $y = x^2 + 2x - 5$

e. $y = x^2 - 7x + 8$

f. $y = x^2 + 7x + 5$

g. $y = 3x^2 + 10x + 5$

h. $y = 2x^2 + 5x - 9$

i. $y = 2x^2 - 5x - 6$

5. State the nature of the roots for the following curves:

a. $y = x^2 + 3$

b. $y = x^2 - 3$

c. $y = x^2 + 8x$

d. $y = x^2 + 4x$

e. $y = x^2 - 9$

f. $y = x^2 - 8x$

g. $y = 2x^2 - 7$

h. $y = 7 - 3x^2$

i. $y = 10x - 3x^2$

6. Find the roots of the following curves (give your answer to 2 significant figures):

a. $y = x^2 + 3$

b. $y = x^2 - 3$

c. $y = x^2 + 8x$

d. $y = x^2 + 4x$

e. $y = x^2 - 9$

f. $y = x^2 - 8x$

g. $y = 2x^2 - 7$

h. $y = 7 - 3x^2$

i. $y = 10x - 3x^2$