

solution, root, x-intercept

3.1 Zeros of Quadratic Functions (Day 3)

OBJ: To solve and find the zeros of quadratic equations.

the x-value for which $y=0$

1. The path of a soccer ball launched off of an 8 meter hill is given by the equation $h(t) = -16t^2 + 64$.

a) How long does it take for the soccer ball to reach its maximum height?

$t = ?$
 y -value of vertex
 $t = -\frac{b}{2a} = \frac{0}{2(-16)} = \boxed{0 \text{ sec}}$

b) How long does it take for the soccer ball to hit the ground?

$t = ?$
 x -intercept for which $y=0$
 $0 = (-16t^2 + 64)$
 $0 = -16(t^2 - 4)$
 $0 = -16(t-2)(t+2)$
 $t-2=0 \rightarrow t=2$
 $t+2=0 \rightarrow t=-2$
 $\boxed{t=2}$

2. Factor $(x^2 + 3x + 18)$ GCF = -1

$= -1(x^2 - 3x - 18)$
 $= -(x-6)(x+3)$
 $x^2 - 3x - 18$

3. Solve $(10y^2 + 25y) = 0$ GCF = 5y

$5y(2y+5) = 0$
 $5y=0 \rightarrow y=0$
 $2y+5=0 \rightarrow 2y=-5 \rightarrow y=-\frac{5}{2}$
 $\boxed{y=0}$
 $\boxed{y=-\frac{5}{2}}$

4. Factor $36x^2 - 25$

$6x \cdot 6x \quad 5 \cdot 5$
 $(6x+5)(6x-5)$
 $30x \quad -30x$

5. Solve $x^2 - 25 = 0$

$(x+5)(x-5) = 0$
 $x+5=0 \rightarrow x=-5$
 $x-5=0 \rightarrow x=5$
 $\boxed{x=-5}$
 $\boxed{x=5}$

6. Solve $3x^2 + 8x - 5 = 0$

$3x^2 + 8x - 5 = 0$
 $(3x+5)(x-1) = 0$
 $3x+5=0 \rightarrow 3x=-5 \rightarrow x=-\frac{5}{3}$
 $x-1=0 \rightarrow x=1$
 $\boxed{x=-\frac{5}{3}}$
 $\boxed{x=1}$

7. Solve $2x^2 + 11x - 20 = 0$

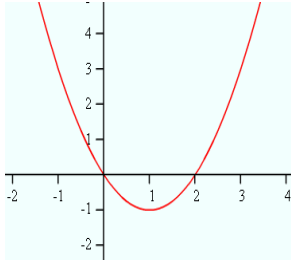
$(2x-3)(x+5) = 0$ GCF = 2
 $(x^2 + 7x + 10) = 0$
 $(x+5)(x+2) = 0$
 $x+5=0 \rightarrow x=-5$
 $x+2=0 \rightarrow x=-2$
 $\boxed{x=-5}$
 $\boxed{x=-2}$

1. Solve $(3x-1)(x+2) = 0$

2. Factor $9x^2 - 36$

3. Solve $x^2 - 144 = 0$.

4. Solve

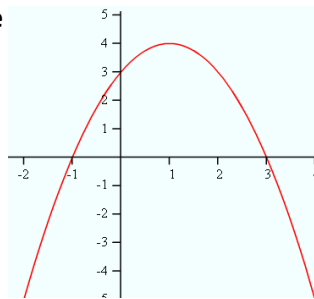


5. Factor $y^2 - 7y + 10$

6. Solve $x^2 + 3x - 54 = 0$.

7. Solve $6x^2 + 7x - 3 = 0$

8. Solve



9. Solve $x^2 - 6x + 30 = 5x$

10. Solve $5x^2 + 20x + 3 = -7x - 7$

11. A baseball is thrown by someone 5 feet tall. The path of the ball can be described by the quadratic equation $h = -t^2 + 2t + 3$.

a.) When does the ball hit the ground?

b) What is the maximum height the ball reaches?

3.1 Zeros of Quadratic Functions (Day 3)

OBJ: To solve and find the zeros of quadratic equations.

Warm-Up

Factor.

1. $9x^2 - 36$

2. $25x^2 - 60x + 36$

$$6x^2 + 7x - 3$$