

1st 2nd

+1	0	6	}	+6	
+1	1	12	}	+8	} +2
+1	2	20	}	+10	} +2
	3	30	}		

Mar 7-8:55 AM

$$-16x^2 + 200x$$

$$-16(6.25)^2 + 200(6.25) = 625$$

$$\frac{-b}{2a} \quad \frac{-200}{2(-16)} \quad \frac{-200}{-32} \quad (6.25)$$

625

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

axis of symmetry $x = -\frac{b}{2a} : \frac{-2}{2(1)} = -1$

vertex $\left(-\frac{b}{2a}, y\right) : (-1, -4)$

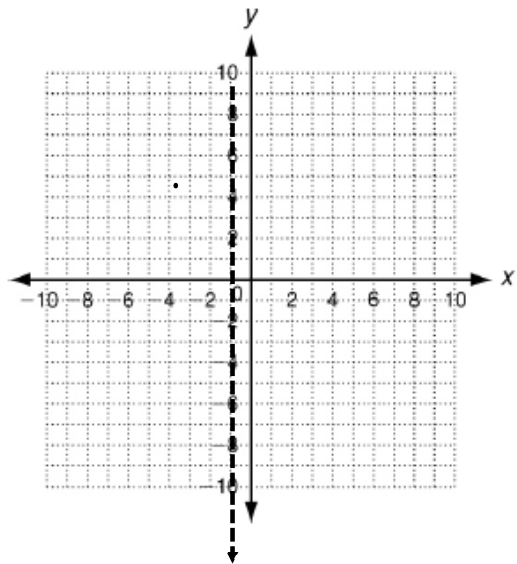
y-intercept (c): -3

two other points: $(0, -3), (-2, -3)$

$$(-1)^2 + 2(-1) - 3$$

$$1 + -2 - 3$$

$$(-4)$$



Mar 6-7:51 PM

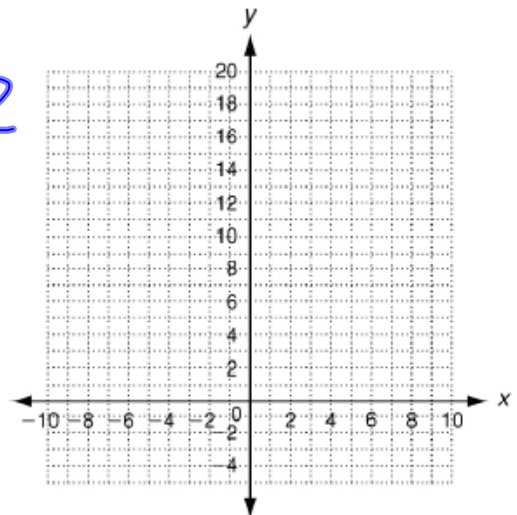
$$y = -2x^2 - 8x + 10$$

axis of symmetry $x = -\frac{b}{2a} : \frac{8}{2(-2)} = \frac{8}{-4} = -2$

vertex $\left(-\frac{b}{2a}, y\right) : (2, 18)$

y-intercept (c): 10

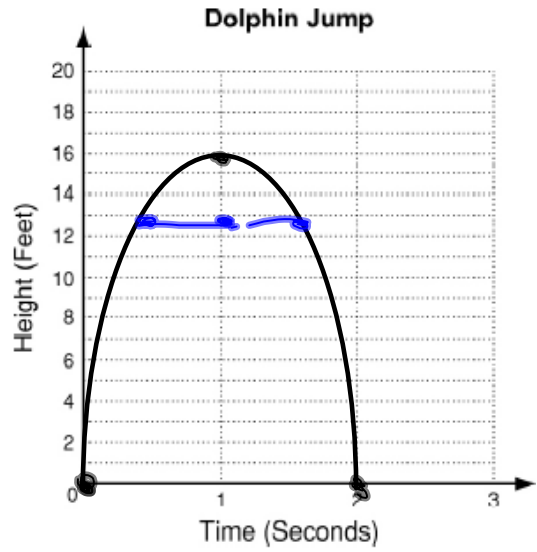
two other points: $(-3, 16), (1, 16)$



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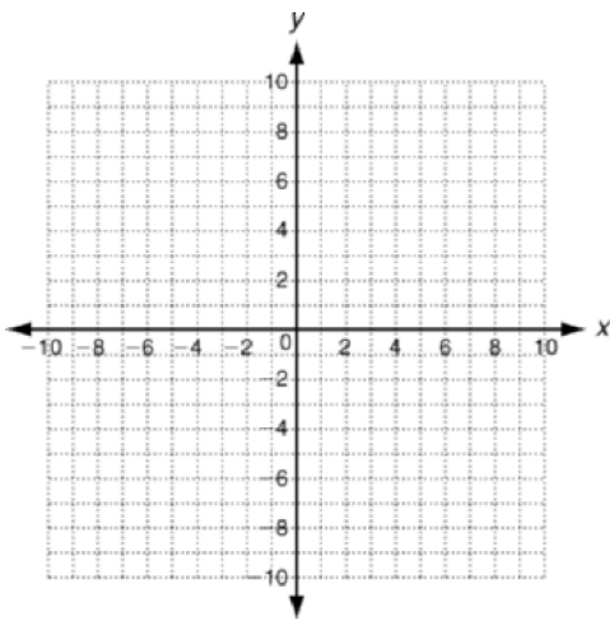
The height in feet of a dolphin as it jumps out of the water at an aquarium show can be modeled by the function $f(x) = -16x^2 + 32x$, where x is the time in seconds after it exits the water. Graph this function. Find the dolphin's maximum height and the time it takes to reach this height. Then find how long the dolphin is in the air.

maximum height: 16 ft.
 time to reach maximum height: 1 sec.
 time in the air: 2 sec.



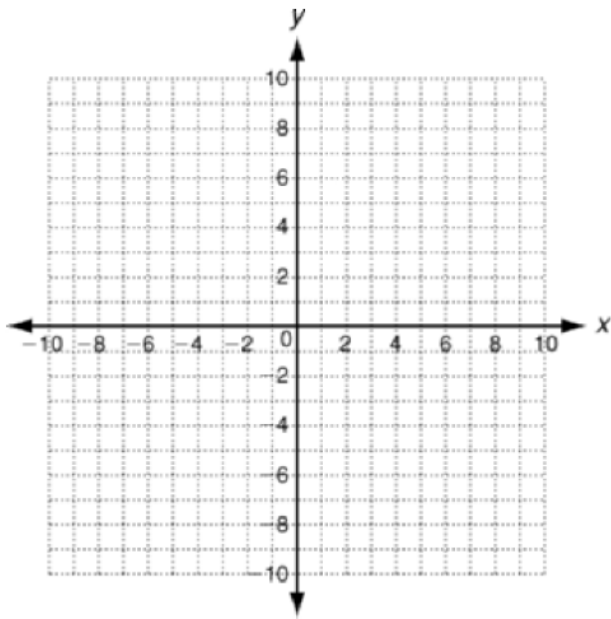
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$$x^2 - 9 = 0$$



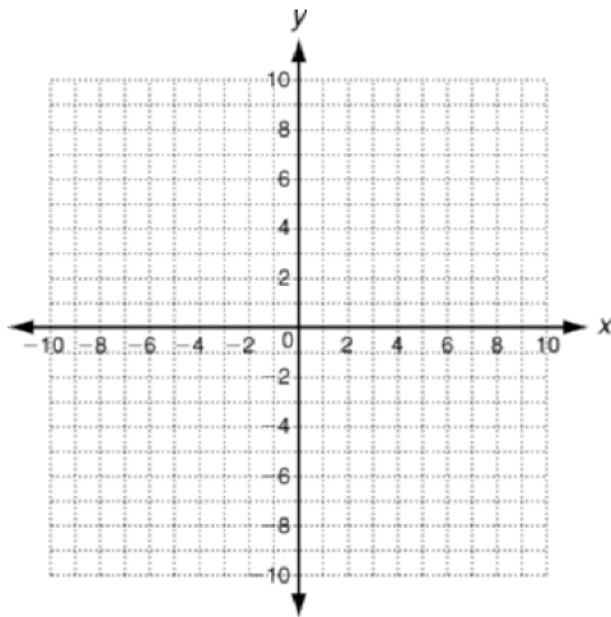
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$$-x^2 - 10x = 25$$



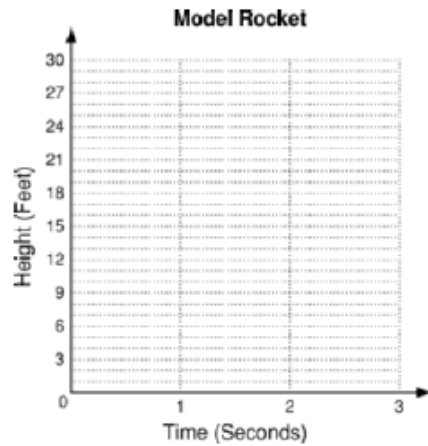
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$$3 + x^2 = 3x^2 - x$$



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A model rocket is launched into the sky. The quadratic function $y = -16x^2 + 32x$ models the height in feet of the rocket after x seconds. How long is the rocket in the air?



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Solve each quadratic equation by factoring.

$$x^2 - 3x = 0 \quad x(x-3) = 0$$

$$x-3=0$$

$$x=0 \quad x=3$$

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

$$(x+1)(x+3) = 0$$

$$x+1=0 \quad x+3=0$$

$$x=-1 \quad x=-3$$

$$x^2 + 11x + 24 = 0$$

$$(x+8)(x+3) = 0$$

$$x=-8 \quad x=-3 \quad \{-8, -3\}$$

$$x^2 - 12x + 11 = 0$$

$$x^2 - 4x - 12 = 0$$

$$x^2 + 11x + 10 = 0$$

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Solve using the quadratic formula.

1. $x^2 - 7x = 44$

$x^2 - 7x - 44$
 $A = 1$ $C = -44$
 $B = -7$

$x = -4$ $x = 11$
 $\{x | x = -4, 11\}$

$(x - 11)(x + 4) = 0$

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

$$\frac{-(-7) \pm \sqrt{(-7)^2 - 4(1)(-44)}}{2(1)}$$

$$\frac{7 \pm \sqrt{49 + 176}}{2}$$

$$\frac{7 \pm \sqrt{225}}{2}$$

$$\frac{7 \pm 15}{2}$$

$$11 = \frac{7+15}{2}$$

$$\frac{7-15}{2} = -4$$

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Find the number of real solutions of each equation using the discriminant.

5. $3x^2 + 10x + 6 = 0$

$10^2 - 4(3)(6)$
 $100 - 72$
 28

6. $4x^2 + x + 6 = 0$

$1^2 - 4(4)(6)$
 $1 - 96$
 -95

7. $4x^2 + 4x + 1 = 0$

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Axis of Sym.

$$-\frac{b}{2a}$$

Quad For

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

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