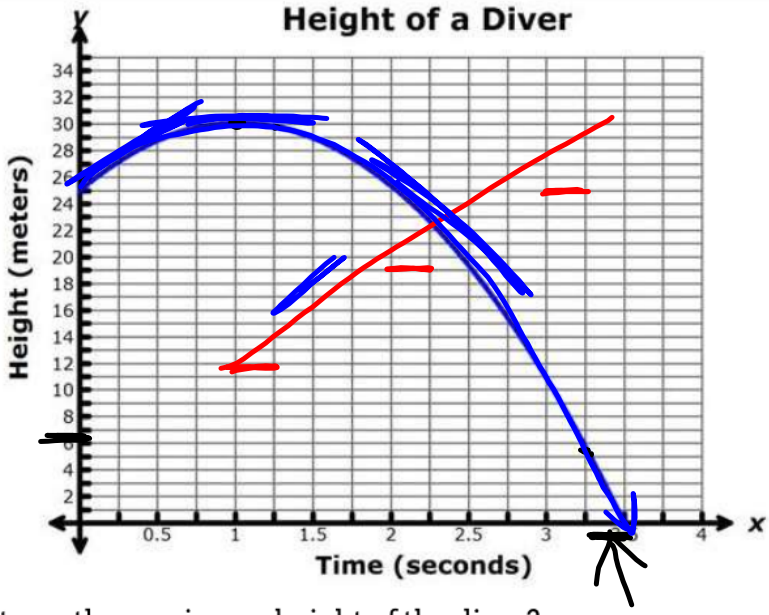
Quadratics: The Graphs



What was the maximum height of the diver?

At what time did the diver reach that height?

Time	Height
0	2
0.25	6
0.5	8
0.75	8
1	6
1.25	2

→ table of values

Sketch the graph of the function:

$$y = x^2 - x - 2$$

$a = 1$
$b = -1$
$c = -2$

A. Determine the y-intercept
B. Any x-intercepts
C. The equation of the axis of symmetry
D. The coordinates of the vertex
E. The domain
F. The range

First of all, what shape will the equation be on a graph? How do we know?

parabola.

degree = 2

A: y-int → y-intercepts happen when x = 0

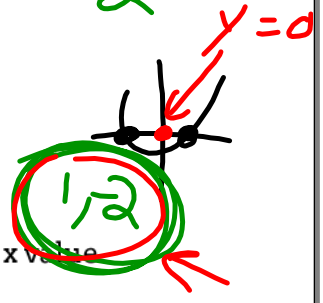
y-int = -2

$y = 0^2 - 0 - 2$
$= -2$

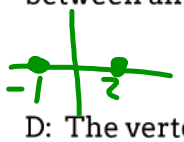
B: Will there be x-intercepts? When are there ?

$y = x^2 - x - 2$
$0 = x^2 - x - 2$

x-int = -1, 2
mn = -2
m+n = -1



C: All parabolas are symmetrical. Therefore we can find the x value between any two points to find the axis of symmetry:



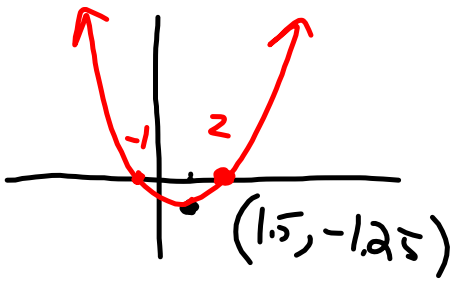
distance = 3
axis of symmetry = $\frac{3}{2}$

x = 1.5

D: The vertex will be the only point that is on the axis of symmetry. We can use that x value and solve for y.

vertex (x, y) = (1.5, -1.25)

$y = 1.5^2 - 1.5 - 2$



E: The domain:

$\{x|x \in R\}$

x such that x exists within the real numbers.

F: The Range:

$\{y|y \geq -2, y \in R\}$

y such that y is greater than or equal to -2. And y exists within the real numbers.

$\mathbb{R}$

$2(x+1)$

$2(x+[2x+1])$

$2\langle x_1, x_2 \rangle$

$\{\ \}$

Assigned work: 368

Pg 128

#1, 3, 4, 11-13