

Give the characteristics of the polynomial

function: $y = -3(2x - 1)(x + 2)(x^2 - 8)$

$$\sqrt{x^2 = 8}$$

$$x = \pm 2\sqrt{2}$$

Domain: _____

$$-\infty < x < \infty \text{ or } (-\infty, \infty)$$

Range: _____

$$-\infty < y \leq 144.254 \text{ or } (-\infty, 144.254]$$

x - intercepts: _____

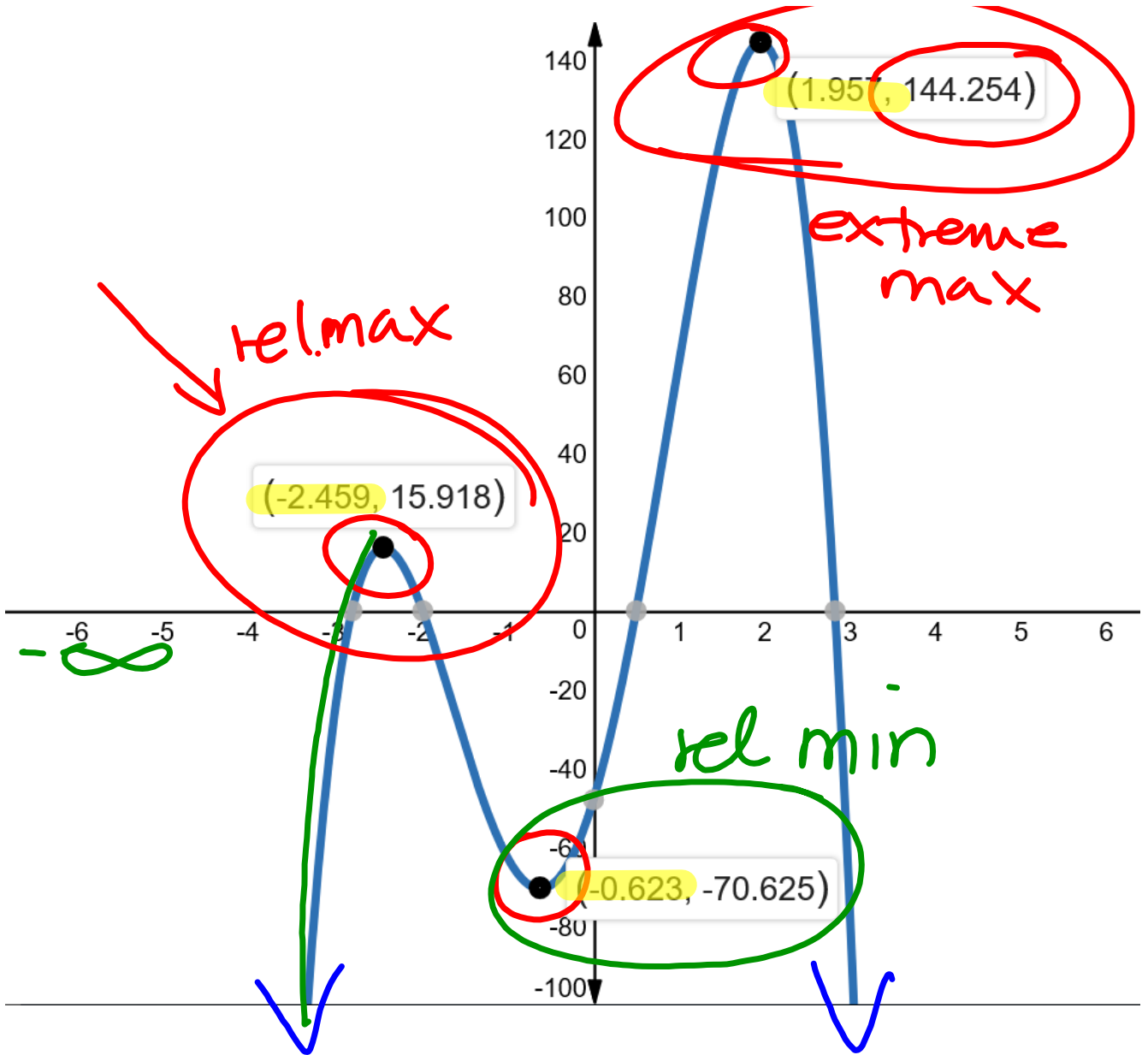
$$\left(\frac{1}{2}, 0\right), (-2, 0), (\pm 2\sqrt{2}, 0)$$

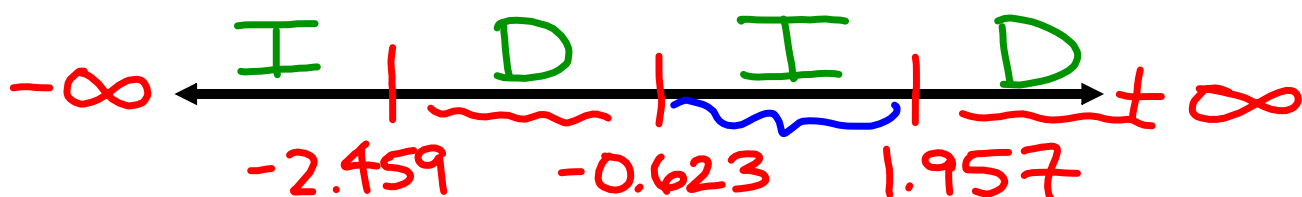
y - intercepts: _____

$$(0, -48) \quad -3(-1)(2)(-8)$$

zeros: _____

$$x = \frac{1}{2}, -2, \pm 2\sqrt{2}$$





interval of increase: $(-\infty, -2.459)$ U

$(-0.623, 1.957)$

interval of decrease: $(-2.459, -0.623)$ U

$(1.957, \infty)$

relative maximums: $(-2.459, 15.918)$

relative minimums: $(-0.623, -70.825)$

extrema maximum: (1.957, 144.254)
absolute
global

extrema minimum: none
absolute
global

end behaviors: $x \rightarrow -\infty$ $y \rightarrow -\infty$
 $x \rightarrow +\infty$ $y \rightarrow -\infty$

Give the characteristics of the polynomial function: $y = -\frac{1}{2}x^2(x^2 + 6x + 12)(x + 5)$ $\text{deg: } 5$

Domain: $-\infty < x < \infty$ or $(-\infty, \infty)$

Range: $-\infty < y < \infty$ or $(-\infty, \infty)$

x - intercepts: $(-5, 0)$ $(0, 0)$

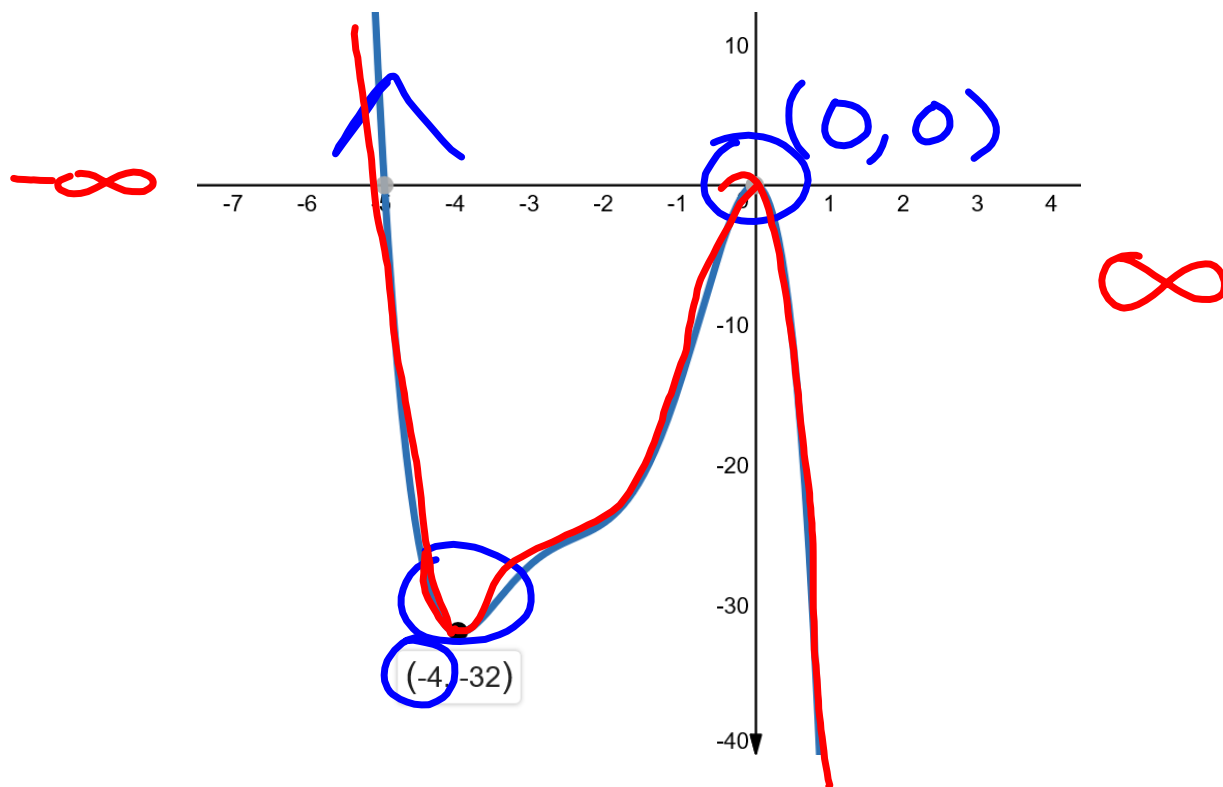
y - intercepts: $(0, 0)$

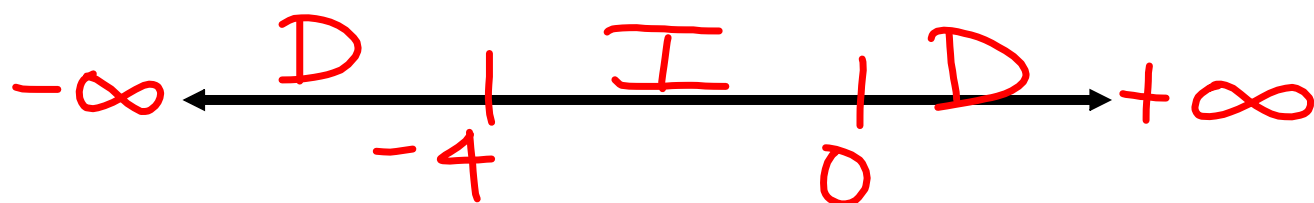
zeros: $x = -5, 0, 2, -3 \pm i\sqrt{3}$

$$1x^2 + 6x + 12 \quad \frac{-6 \pm \sqrt{-12} \cdot 3}{2}$$

$a=1 \quad b=6 \quad c=12$

$$\frac{-6 \pm 2i\sqrt{3}}{2}$$





interval of increase: $(-4, 0)$

interval of decrease: $(-\infty, -4) \cup (0, \infty)$

relative maximums: $(0, 0)$

relative minimums: $(-4, -32)$

extrema maximum: none

extrema minimum: none

end behaviors: $x \rightarrow -\infty$ $y \rightarrow +\infty$
 $x \rightarrow +\infty$ $y \rightarrow -\infty$