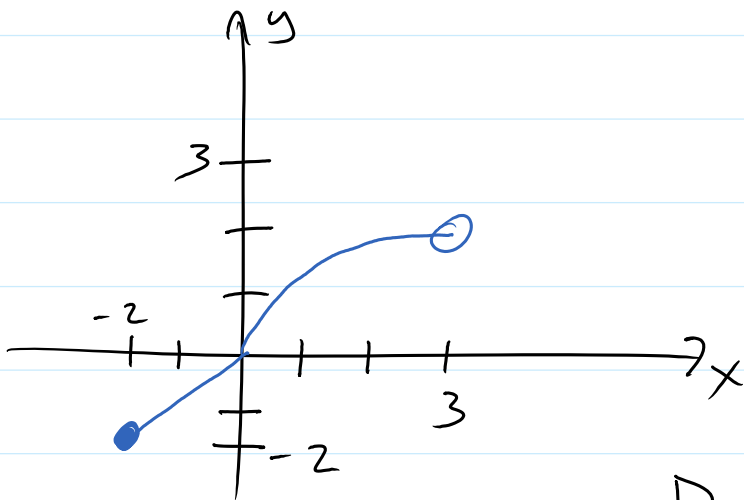
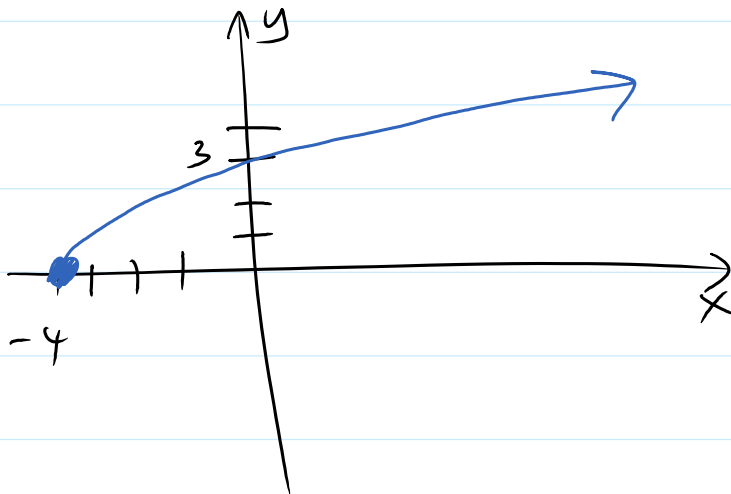


# Section 2.1

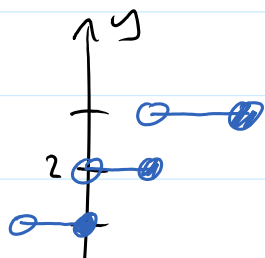


x-intercept  $(0,0)$   
 y-intercept  $(0,0)$

Domain:  $[-2, 3)$   
 Range:  $[-2, 2)$

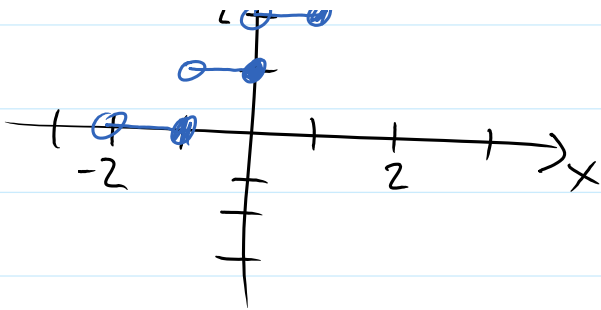


x-int:  $-4$   
 y-int:  $3$   
 Dom:  $[-4, \infty)$   
 Range:  $[0, \infty)$



$$f(0) = 1 \mid f(0.5) = 2 \mid f(-0.5) = 1$$

x-int:  $\{x \mid -2 < x \leq -1\} = (-2, -1]$

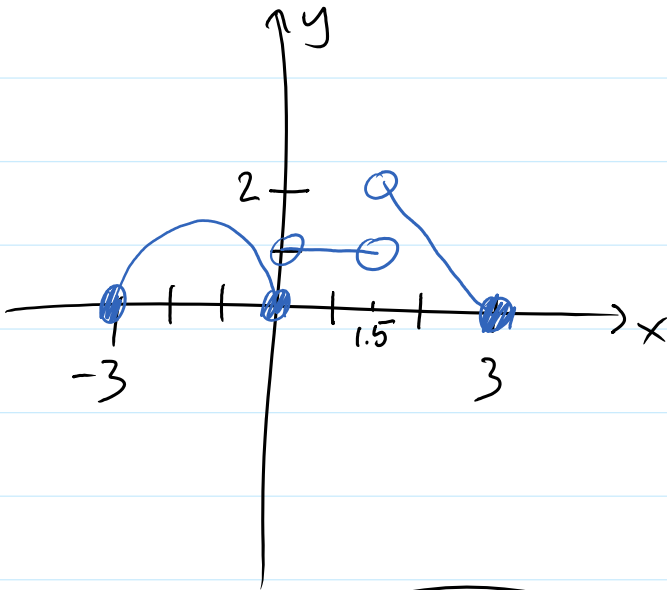


x-int:  $\{x \mid -2 < x \leq -1\} = (-2, -1]$

y-int:  $y=1$

Dom:  $(-2, 2]$

Range:  $\{0, 1, 2, 3\}$

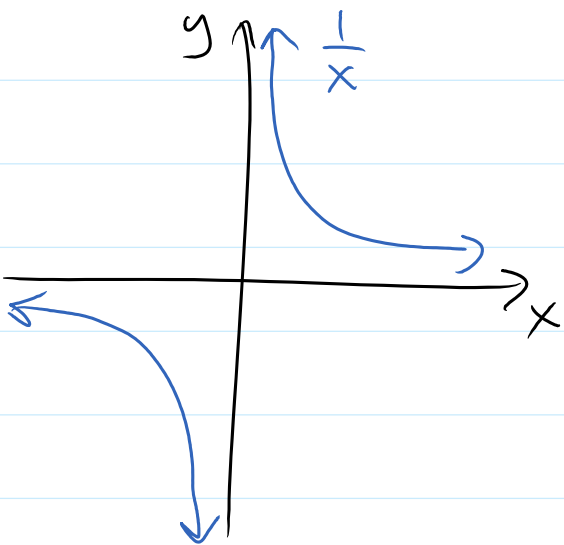


x-int:  $-3, 0, 3$

y-int:  $0$

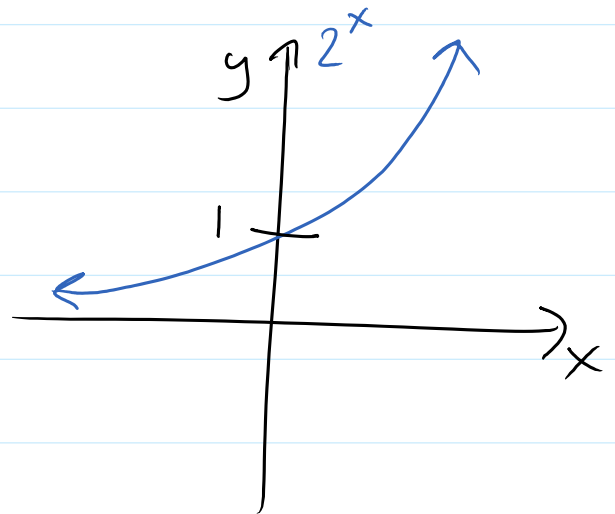
Domain:  $[-3, 1.5) \cup (1.5, 3]$

Range:  $[0, 2)$



x-int: none

y-int: none



x-int: none

y-int:  $1$

Dom:  $(-\infty, \infty)$  | Range:  $(0, \infty)$

$$\text{Dom: } (-\infty, 0) \cup (0, \infty)$$

$$\text{Range: } (-\infty, 0) \cup (0, \infty)$$

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Ex: A car was purchased for \$22500. The value of the car decreased by \$3200 per year for the first 6 years.

Write a function that describes the value of the car,  $V$ , after  $x$  years. Find  $V(3)$ .

$$V(x) = 22500 - 3200x$$

$$V(3) = 22500 - 9600 = \boxed{12900}$$

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## Review

Simplify:

$$\frac{x^2}{3} - \frac{x-2}{6} = \frac{2}{2} \cdot \frac{x^2}{3} - \frac{x-2}{6} = \frac{2x^2}{6} - \frac{x-2}{6}$$

$$= \frac{2x^2 - (x-2)}{6} = \boxed{\frac{2x^2 - x + 2}{6}}$$

$$\frac{\frac{x}{x} \cdot 3 + \frac{1}{x}}{\frac{x}{x} \cdot 2 - \frac{1}{x}} = \frac{\frac{3x}{x} + \frac{1}{x}}{\frac{2x}{x} - \frac{1}{x}} = \frac{\frac{3x+1}{x}}{\frac{2x-1}{x}} = \frac{3x+1}{x} \cdot \frac{x}{2x-1}$$

$$= \boxed{\frac{3x+1}{2x-1}}$$

$$\begin{aligned} \bullet \frac{3-i}{4+i} \cdot \frac{4-i}{4-i} &= \frac{12-3i-4i+i^2}{4^2-i^2} = \frac{12-7i+(-1)}{16-(-1)} \\ &= \frac{11-7i}{17} = \boxed{\frac{11}{17} - \frac{7}{17}i} \end{aligned}$$

Solve:  $x - \sqrt{3x-11} = 5$

$$x - 5 = \sqrt{3x-11}$$

$$(x-5)^2 = (\sqrt{3x-11})^2$$

$$x^2 - 2 \cdot x \cdot 5 + 5^2 = 3x - 11$$

$$x^2 - 10x + 25 - 3x + 11 = 0$$

$$x^2 - 13x + 36 = 0$$

$$(x-4)(x-9) = 0$$

$$\boxed{\cancel{x=4}}$$

$$\boxed{x=9}$$

/<sup>2</sup>

$$x=4$$

$$4 - \sqrt{12-11} = 5$$

$$4 - \sqrt{1} = 5$$

**NO**

$$x=9$$

$$9 - \sqrt{27-11} = 5$$

$$9 - \sqrt{16} = 5$$

$$9 - 4 = 5 \quad \boxed{\text{yes}}$$

Find the line that passes  $(1, 7)$  x-int:  $-6$

$$\text{slope: } \frac{y_2 - y_1}{x_2 - x_1} = \frac{7 - 0}{1 - (-6)} = \frac{7}{7} = 1$$

$(-6, 0)$

$$y - 0 = 1(x - (-6))$$

$$\boxed{y = x + 6}$$