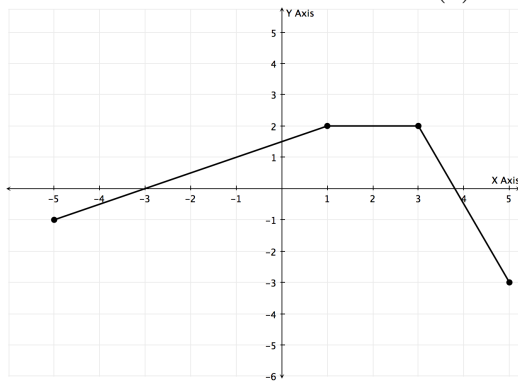


COLLEGE ALGEBRA QUIZ

- (1) On what intervals is the function (a) increasing, (b) decreasing, (c) constant?



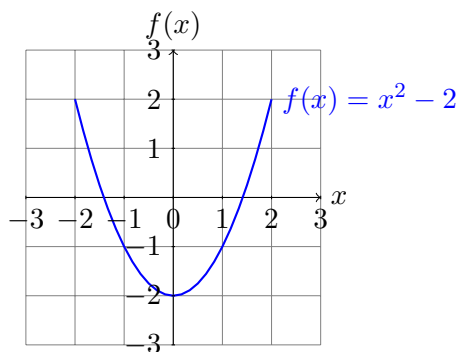
Solution:

Increasing interval, $(-5,1)$;

Decreasing interval, $(3,5)$;

Constant interval, $(1,3)$

- (2) Given the graph of $f(x) = x^2 - 2$, estimate any relative maxima or minima.



Solution:

no relative maximum

relative minimum is -2 at $x = 0$

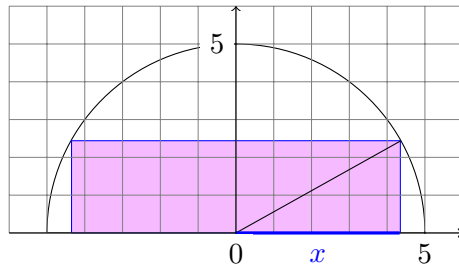
- (3) Two teachers, Harvey and Erin, drive away from a school at right angles to each other. Harvey's speed is 45 mph and Erin's speed is 55 mph.
- (a) Find $d(t)$, the distance between Harvey and Erin as a function of time.
- (b) Find the domain $d(t)$.

Solution:

$$d(t) = 71.06t$$

Domain is $[0, \infty)$

- (4) Find the area of the following rectangle as a function of x . The radius of the circle is 5, and the length of the rectangle is $2x$.



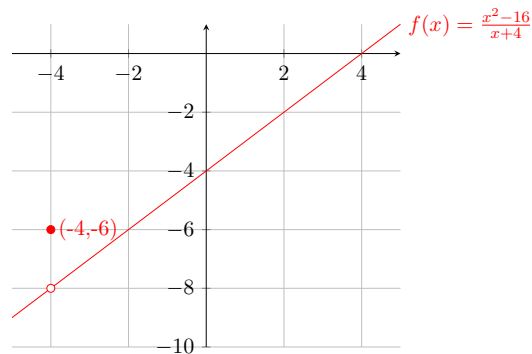
Solution:

$$A(x) = 2x\sqrt{25 - x^2}$$

- (5) Graph the following piecewise function, then find $f(-4)$, $f(4)$ and $f(0)$.

$$f(x) = \begin{cases} \frac{x^2-16}{x+4} & x \neq -4 \\ -6 & x = -4 \end{cases}$$

Solution:



$$f(-4) = -6, f(4) = 0, f(0) = -4$$