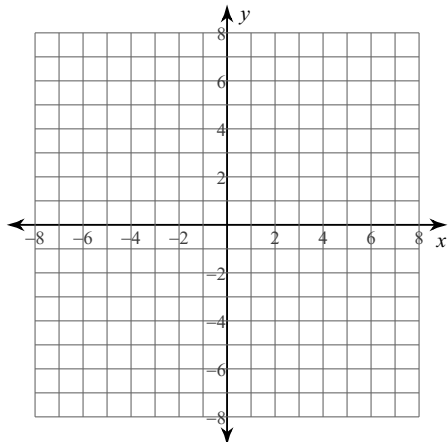


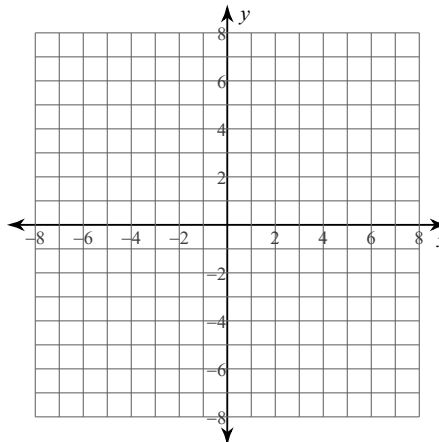
8.1-8.4 Review

Identify the vertical asymptotes and horizontal asymptote of each. Then sketch the graph.

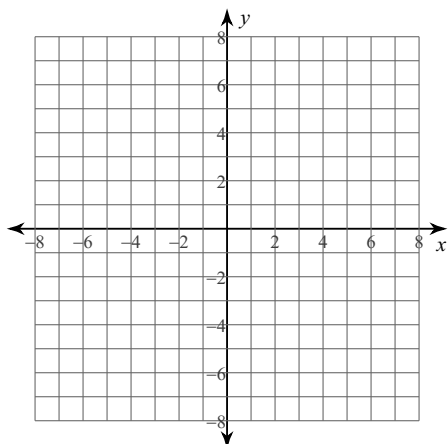
$$1) f(x) = \frac{2}{x-2} + 1$$



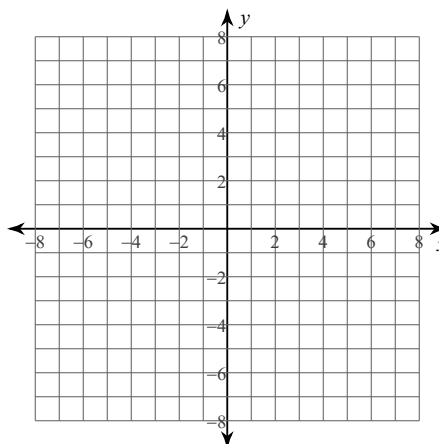
$$2) f(x) = -\frac{3}{x} + 2$$



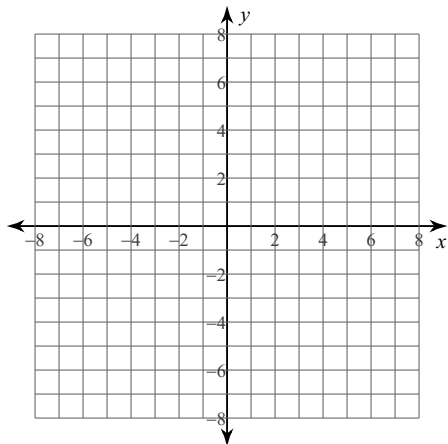
$$3) f(x) = -\frac{4}{x+1} - 2$$



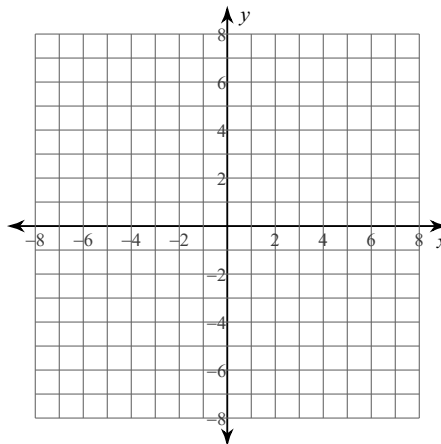
$$4) f(x) = -\frac{3}{x-2}$$



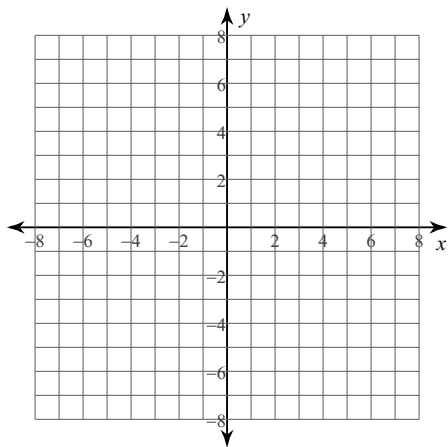
$$5) f(x) = \frac{2}{x^2 - x - 6}$$



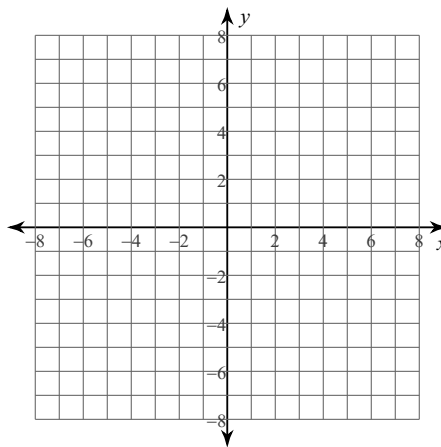
$$6) f(x) = \frac{-x^2 + x + 12}{x^2 + 5x + 6}$$



$$7) f(x) = \frac{x^2 - 3x + 2}{-3x + 12}$$



$$8) f(x) = \frac{x^2 - 4x}{4x - 4}$$



Simplify each expression.

$$9) -\frac{60x}{30x^3}$$

$$10) \frac{12n^4}{4n^3}$$

$$11) \frac{k^2 - 5k - 24}{k^2 - 18k + 80}$$

$$12) \frac{14m + 7}{21m + 7}$$

$$13) \frac{6n^3}{19n^2} \cdot \frac{19}{16}$$

$$14) \frac{10x^3}{14} \cdot \frac{15}{9}$$

$$15) \frac{2n - 12}{n - 3} \cdot \frac{n - 3}{2}$$

$$16) (n + 4) \cdot \frac{n + 1}{n^2 + 5n + 4}$$

$$17) \frac{3x^3 - 21x^2}{x - 7} \cdot \frac{1}{x - 7}$$

$$18) \frac{3a + 18}{a - 1} \cdot \frac{1}{a + 6}$$

$$19) \frac{1}{7x} \cdot \frac{x^2 + 14x + 48}{x + 8}$$

$$20) \frac{v^2 - 16}{v + 4} \cdot \frac{1}{v - 4}$$

$$21) 5k^2 \div \frac{6k + 36}{k + 6}$$

$$22) \frac{1}{n + 5} \div \frac{n + 4}{n^2 - n - 30}$$

$$23) \frac{p + 4}{6p} \div \frac{p^2 + 7p + 12}{p^2 - 9}$$

$$24) \frac{16 - 56x}{56x - 16} \div \frac{6x}{8}$$

$$25) \frac{1}{5x^2} \div \frac{-x^2 + 14x - 48}{x^2 - 36}$$

$$26) \frac{7r^3 - 56r^2}{r - 8} \div (r + 8)$$

27) The value M (in dollars) of a motorcycle t years after it was purchased new can be estimated using

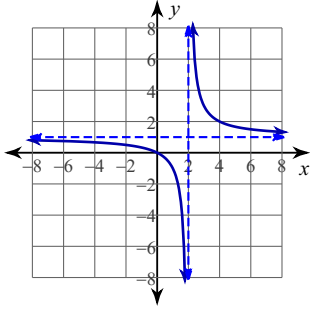
the function: $M(t) = \frac{3500}{t} + 500$ where $t \geq 1$.

a. Estimate the motorcycle's value 5 years after it was purchased.

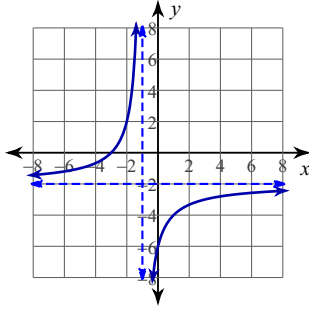
b. What does the value of the motorcycle approach as time passes? Why?

Answers to 8.1-8.4 Review

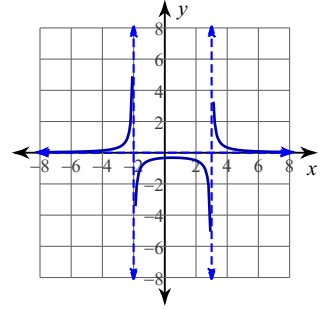
1)



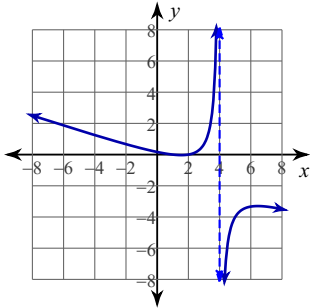
3)



5)



7)



9) $-\frac{2}{x^2}$

11) $\frac{k+3}{k-10}$

13) $\frac{3n}{8}$

15) $n - 6$

17) $\frac{3x^2}{x-7}$

19) $\frac{x+6}{7x}$

21) $\frac{5k^2}{6}$

23) $\frac{p-3}{6p}$

25) $\frac{x+6}{5x^2(-x+8)}$

27)