

Name _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the problem.

- 1) A can in the shape of a right circular cylinder is required to have a volume of 700 cubic centimeters. The top and bottom are made up of a material that costs 8¢ per square centimeter, while the sides are made of material that costs 5¢ per square centimeter. Which function below describes the total cost of the material as a function of the radius r of the cylinder?

1) _____

A) $C(r) = 0.08\pi r^2 + \frac{70}{r}$

B) $C(r) = 0.08\pi r^2 + \frac{140}{r}$

C) $C(r) = 0.16\pi r^2 + \frac{140}{r}$

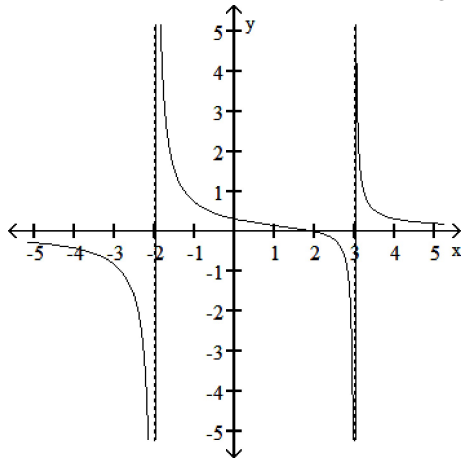
D) $C(r) = 0.16\pi r^2 + \frac{70}{r}$

Answer: D

Explanation: A)
B)
C)
D)

- 2) Decide which of the rational functions might have the given graph.

2) _____



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

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

C) $R(x) = \frac{x-2}{(x+2)^2(x-3)^2}$

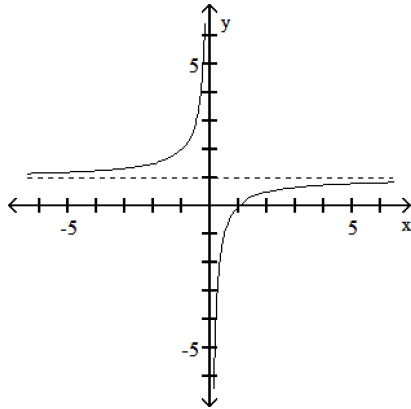
D) $R(x) = \frac{x+2}{(x-2)(x+3)}$

Answer: B

Explanation: A)
B)
C)
D)

3) Decide which of the rational functions might have the given graph.

3) _____



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

B) $f(x) = 1 - x$

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

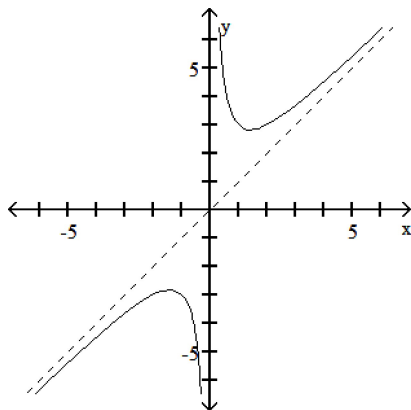
D) $f(x) = \frac{1}{x} - 1$

Answer: A

Explanation: A)
B)
C)
D)

4) Decide which of the rational functions might have the given graph.

4) _____



A) $f(x) = x + 2$

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

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

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

Answer: C

Explanation: A)
B)
C)
D)

5) Determine which rational function $R(x)$ has a graph that crosses the x -axis at -1 , touches the x -axis at -4 , has vertical asymptotes at $x = -2$ and $x = 3$, and has one horizontal asymptote at $y = -2$.

5) _____

A) $R(x) = \frac{-2(x-3)(x+2)^2}{(x+4)^2(x+1)}$, $x \neq -4, -1$

B) $R(x) = \frac{-2(x+1)(x+4)^2}{(x+2)^2(x-3)}$, $x \neq -2, 3$

C) $R(x) = \frac{-2(x+1)(x+4)}{(x+2)(x-3)}$, $x \neq -2, 3$

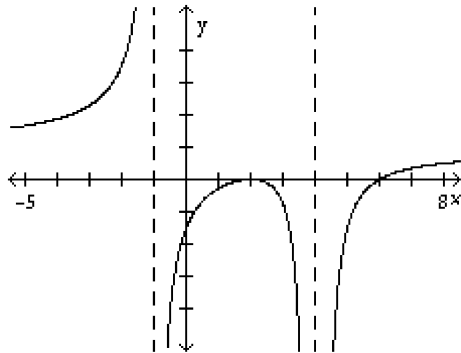
D) $R(x) = \frac{-(x+1)(x+4)^2}{2(x-2)^2(x+3)}$, $x \neq 2, -3$

Answer: B

Explanation: A)
B)
C)
D)

6) Which of the following functions could have this graph?

6) _____



A) $y = \frac{(x-2)^2(x-6)}{(x+1)(x-4)^2}$

B) $y = \frac{2(x-2)^2(x-6)}{(x+1)(x-4)^2}$

C) $y = \frac{(x-2)(x-6)^2}{(x+1)2(x-4)}$

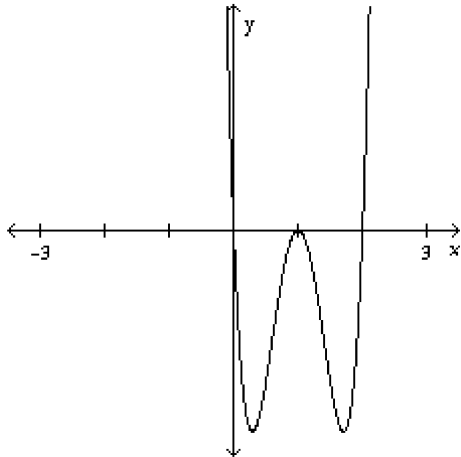
D) $y = \frac{(x+1)(x-4)^2}{(x-2)2(x-6)}$

Answer: A

Explanation: A)
B)
C)
D)

7) Which of the following polynomial functions might have the graph shown in the illustration below?

7) _____



A) $f(x) = x(x - 2)(x - 1)^2$

B) $f(x) = x(x - 2)^2(x - 1)$

C) $f(x) = x^2(x - 2)^2(x - 1)^2$

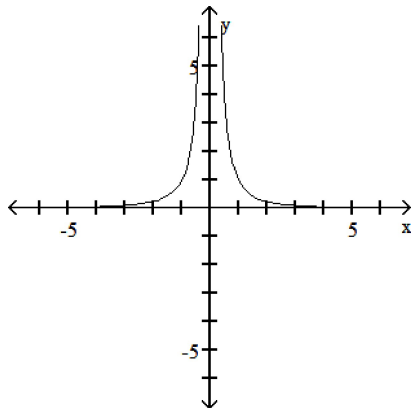
D) $f(x) = x^2(x - 2)(x - 1)$

Answer: A

Explanation: A)
B)
C)
D)

8) Decide which of the rational functions might have the given graph.

8) _____



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

B) $f(x) = \frac{1}{x^2}$

C) $f(x) = x^2$

D) $f(x) = \frac{1}{x}$

Answer: B

Explanation: A)
B)
C)
D)