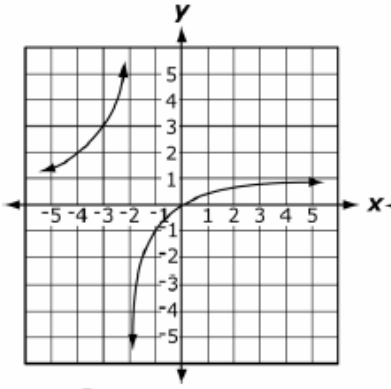
Algebra 2 Quick Quiz 12162022

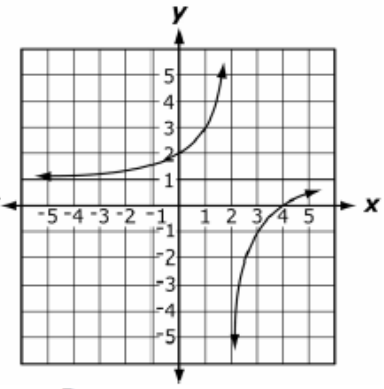
Question 1. Do NOT use graphing software to answer this question.

What is the graph of the function $f(x)=\frac{x}{x-2}$?

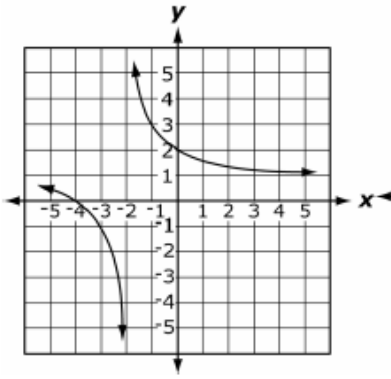
A



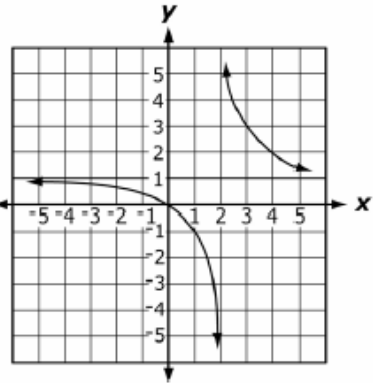
B



C

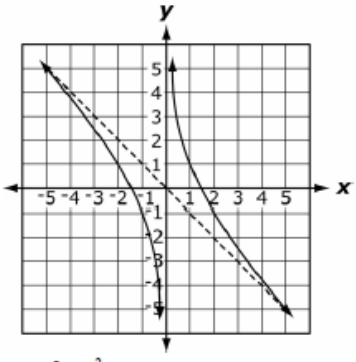


D



Question 2 Do NOT use graphing software to answer this question.

Which function is represented by this graph?



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

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

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

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

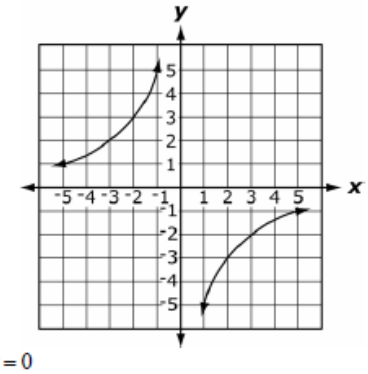
Question 3.

How many vertical asymptotes does the graph of $y=\frac{x-2}{x^2+4}$ have?

A 0 vertical asymptotes
B 1 vertical asymptote
C 2 vertical asymptotes
D 4 vertical asymptotes

Question 4.

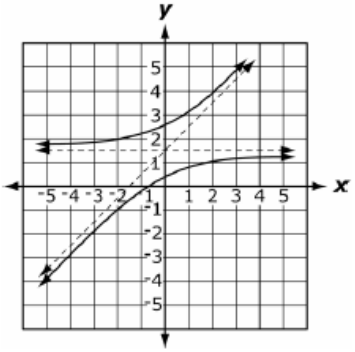
What is the horizontal asymptote of this graph?



A $x=0$
B $y=0$
C $x=2.5$
D $y=2.5$

Question 5.

Which statement correctly describes the asymptotes of the graph of this rational function?



A The vertical asymptote is $x=\frac{3}{2}$, and there is a negative slant asymptote.

B The vertical asymptote is $y=\frac{3}{2}$, and there is a negative slant asymptote.

C The horizontal asymptote is $x=\frac{3}{2}$, and there is a positive slant asymptote.

D The horizontal asymptote is $y=\frac{3}{2}$, and there is a positive slant asymptote.

Question 6.

How many x-intercepts does the graph of $y=\frac{x+1}{x^2-1}$ have?

A 0
B 1
C 2
D 4

Question 7.

What are the vertical and horizontal asymptotes of $f(x)=\frac{x^2-9}{16-x^2}$?

A $x=\pm 4,\ \text{and}\ y=-1$
B $y=\pm 4,\ \text{and}\ x=-1$
C $x=\pm 4,\ \text{and}\ y=1$
D $y=\pm 4,\ \text{and}\ x=1$

Question 8.

If the surface area of a closed cylinder is 25 square inches, which equation represents the height of the cylinder in terms of r? $\left(SA=2\pi rh+2\pi r^2\right)$

A $h=\frac{25+2\pi r^2}{2\pi r}$
B $h=\frac{25-2\pi r^2}{2\pi r}$
C $h=25+r$
D $h=25-r$

Question 9.

A homeowner stocked his pond with fish. The number of fish, F, increases according to the equation, $F=\frac{19(3+2t)}{1+0.05t}$, where t is the time in years. What is the approximate number of fish after 10 years?

A 49 fish
B 69 fish
C 138 fish
D 291 fish

Question 10.

The cost, C, in thousands of dollars, to remove x percent of the trash left by a tornado is modeled by the equation $C=\frac{450x}{225-x}$. Approximately what percent of trash will be removed if 100 thousand dollars are spent?

A 41%
B 50%
C 59%
D 64%

Bonus Question

Question 11

Paul started to train for a marathon. The table shows the number of miles Paul ran during each of the first three weeks after he began training.

Week	1	2	3
Distance (miles)	10	12	14.4

If this pattern continues, which of the listed statements could model the number of miles Paul runs a_n, in terms of the number of weeks, n, after he began training?

Select **all** that apply.

A. $a_n = 10 + 2(n - 1)$

B. $a_n = 10n^2$

C. $a_n = 10(1.2)^{n-1}$

D. $a_1 = 10$, $a_n = 1.2a_{n-1}$

E. $a_1 = 10$, $a_n = 2 + a_{n-1}$