

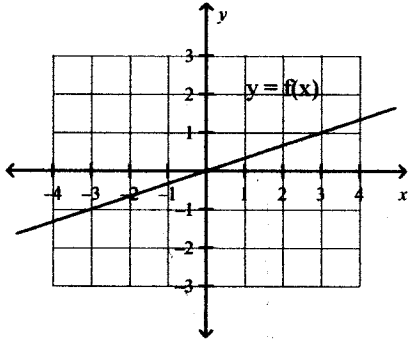
**PMATH 12 - CHAPTER 2 - PRETEST**

**signature**

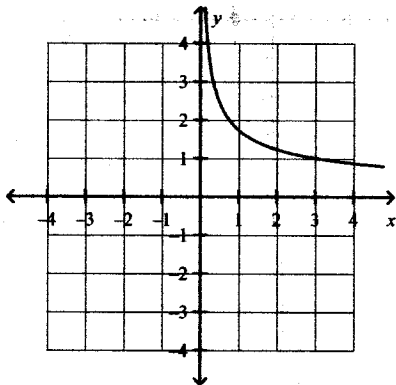
**Multiple Choice - PART 1 - NON-CALCULATOR- 10 minutes (#1-5)**

*Circle the choice that best completes the statement or answers the question.*

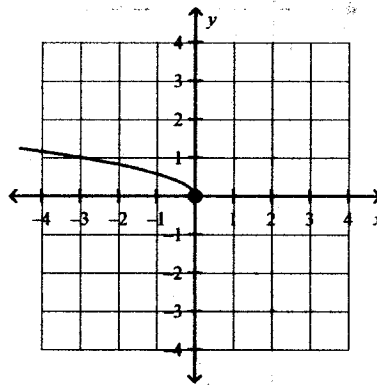
1. For the graph of  $y = f(x)$  shown below, which graph best represents  $y = \sqrt{f(x)}$ ?



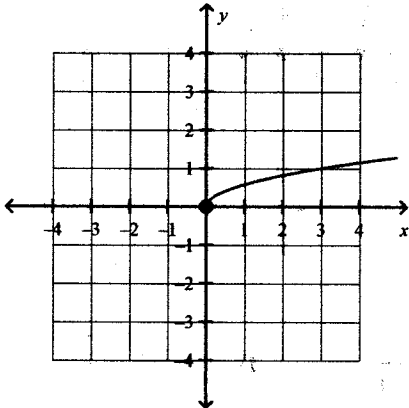
A.



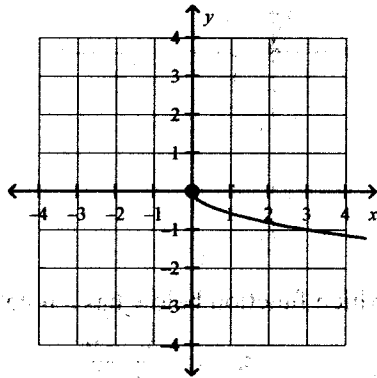
C.



B.



D.



2. What is the solution of this rational equation, to the nearest tenth if necessary?

$$\frac{4}{x-1} = -8$$

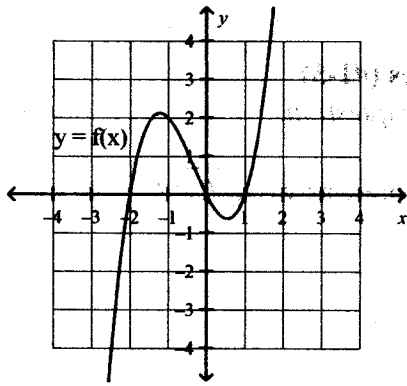
A.  $x \doteq 1.5$

B.  $x \doteq 0.5$

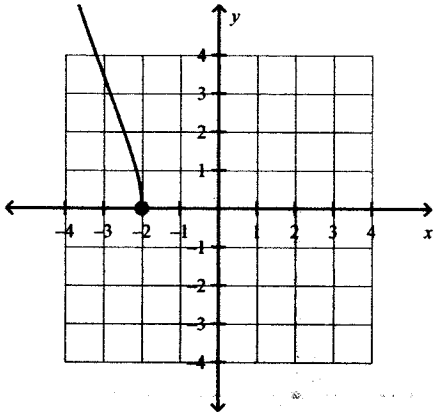
C.  $x \doteq -1.5$

D.  $x \doteq -0.5$

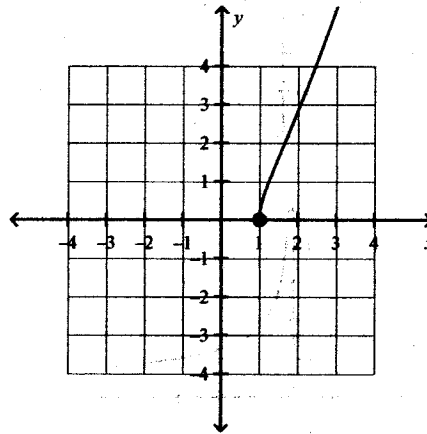
3. For the graph of  $y = f(x)$  shown below, which graph best represents  $y = \sqrt{f(x)}$ ?



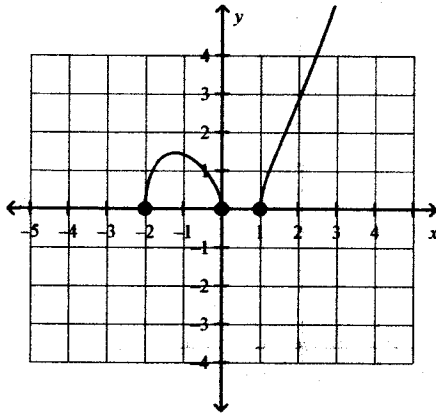
A.



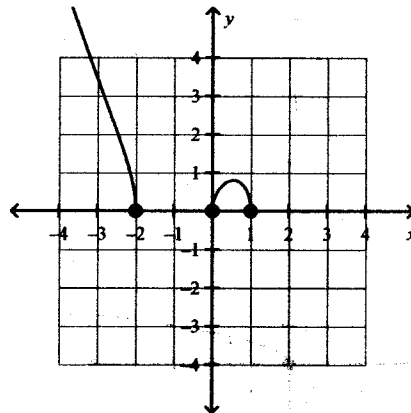
C.



B.



D.



4. The graph of which function below has a hole?

A.  $y = \frac{x+2}{x^2+2}$

B.  $y = \frac{x^2-9}{x+3}$

C.  $y = \frac{x^2}{x-4}$

D.  $y = \frac{x^2-3}{x^2-2}$

5. The graph of which function below has a horizontal asymptote?

A.  $y = \frac{x^2-7x+12}{x+7}$

B.  $y = \frac{x^2-3}{x+7}$

C.  $y = \frac{x^2+3}{x^2-2}$

D.  $y = \frac{x^2}{x+3}$

**MULTIPLE CHOICE - CALCULATOR may be used after 10 minutes**

6. What is the equation of the vertical asymptote of the graph of this function?

$$y = \frac{x+4}{x^2+10x+25}$$

- A.  $x = -5$       B.  $x = 0$       C.  $x = -4$       D. The graph has no vertical asymptote.

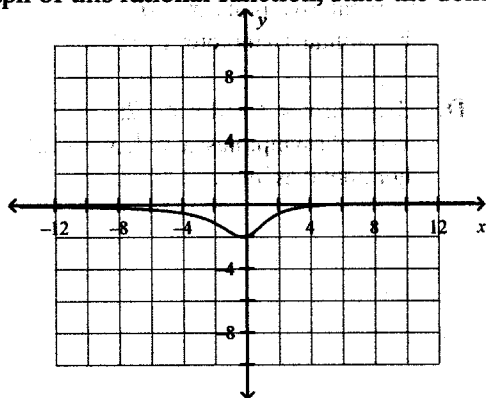
7. State the domain of this function.

$$y = \frac{x^2+7x+10}{-2-x}$$

- A.  $x \neq \pm 2$       B.  $x \neq -2$       C.  $x \neq -2, x \neq -5$       D.  $x \in \mathbb{R}$

8. For the graph of this rational function, state the domain and write the equations of any asymptotes.

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



- A. domain:  $x \in \mathbb{R}$ ;  
horizontal asymptote:  $y = 0$
- B. domain:  $x \neq -3$ ;  
horizontal asymptote:  $y = 0$
- C. domain:  $x \neq 0$ ;  
vertical asymptote:  $x = 0$
- D. domain:  $x \in \mathbb{R}$ ;  
no vertical or horizontal asymptotes

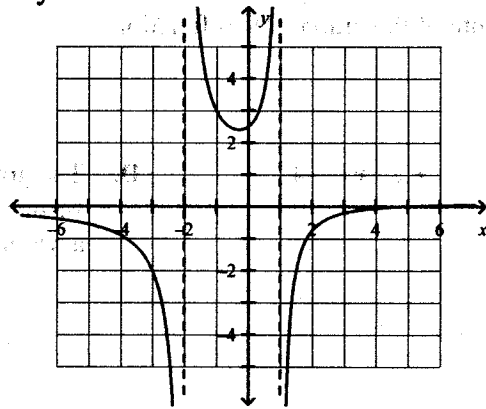
9. For the graph of this rational function, identify the equations of any asymptotes and the coordinates of any hole.

$$y = \frac{x^2+5x+6}{x-3}$$

- A. The graph has a hole at  $(3,30)$ .
- B. The graph has a vertical asymptote at  $x = 3$ , and an oblique asymptote at  $y = x - 3$ .
- C. The graph has a vertical asymptote at  $x = 3$ , and an oblique asymptote at  $y = x + 8$ .
- D. The graph has a horizontal asymptote at  $y = 0$ .

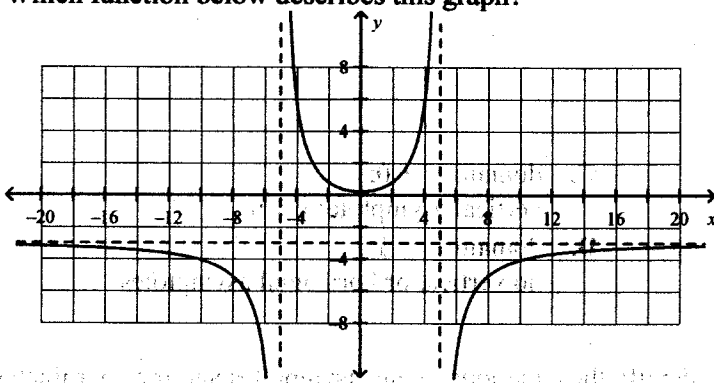
10. For the graph of this rational function, state the domain and write the equations of any asymptotes and the coordinates of any hole.

$$y = \frac{x-5}{x^2+x-2}$$



- A. domain:  $x \neq 1$  and  $x \neq -2$ ;  
vertical asymptotes:  $x = 1, x = -2$ ;  
horizontal asymptote:  $y = 1$
- B. domain:  $x \neq 1$  and  $x \neq -2$ ;  
hole:  $(-2, -7)$   
vertical asymptote:  $x = 1$ ;  
horizontal asymptote:  $y = 0$
- C. domain:  $x \neq 0$ ;  
hole:  $(0, -7)$   
vertical asymptote:  $x = 0$ ;  
horizontal asymptote:  $y = 0$
- D. domain:  $x \neq 1$  and  $x \neq -2$ ;  
vertical asymptotes:  $x = 1, x = -2$ ;  
horizontal asymptote:  $y = 0$

11. Which function below describes this graph?



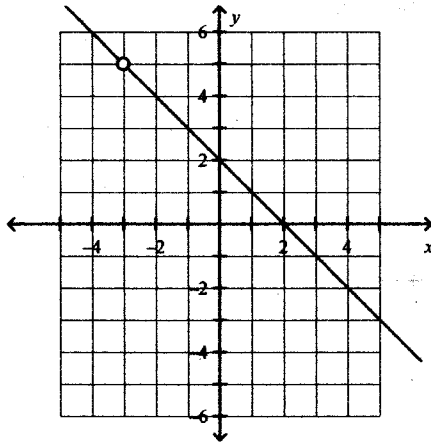
- A.  $y = \frac{-3x^2 - 5}{x^2 - 25}$
- B.  $y = \frac{2x^2 - 5}{x^2 - 25}$
- C.  $y = \frac{-3x^2 - 5}{x^2 + 5}$
- D.  $y = \frac{-3x^2 - 5}{x^2}$

12. Use graphing technology to solve:  $\sqrt{3x-1} = -x+5$

Give the solution to the nearest tenth.

- A.  $x \approx 10.5$
- B.  $x \approx 10.8$
- C.  $x \approx 2.2$
- D.  $x \approx 2.5$

13. Which function below describes this graph?



- A.  $y = \frac{-x^2 - x + 6}{x - 3}$     B.  $y = \frac{-x^2 - x + 6}{x + 3}$     C.  $y = \frac{-x^2 + 6x + 1}{x + 3}$     D.  $y = \frac{x + 3}{-x^2 - x + 6}$

**Short Answer - show your work**

1. Use technology to graph this function, then complete the table below.

$$y = \frac{x + 5}{x^2 - 9x + 20}$$

Vertical Asymptote(s)	Horizontal Asymptote	Non-permissible values of x

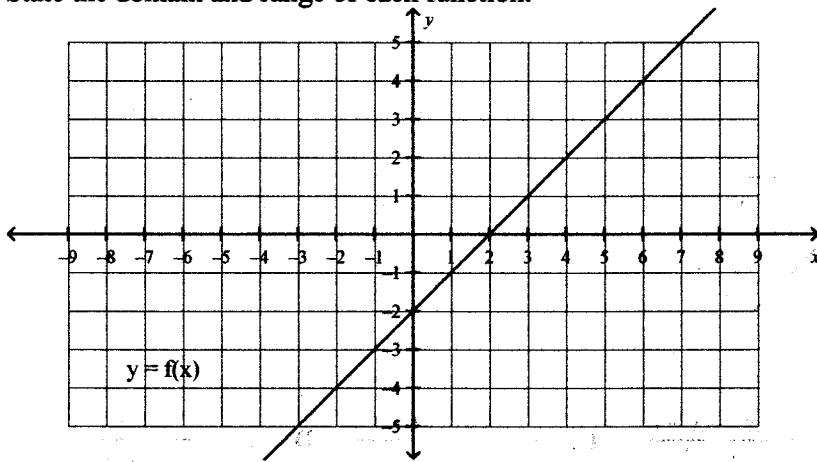
2. The graph of this function has an oblique asymptote! Write the equation of the asymptote.

$$y = \frac{x^2}{x + 3}$$

**Problem - show your work**

1. Write an equation for a rational function whose graph has exactly 1 hole. Explain why it has a hole.

2. For the graph of  $y = f(x)$  shown below, sketch the graph of  $y = \sqrt{f(x)}$ .  
State the domain and range of each function.



$f(x)$  - domain

$\sqrt{f(x)}$  - domain

- range

- range

3. Sketch the graph of this function, and state the domain and range. Show your work.

$$y = \frac{x^3 - x}{x + 1}$$

WORK

