

Exam 4 Review
Math 60 -80 Fast Track

Name: _____

1) Use the graph of $f(x)$ to find each:

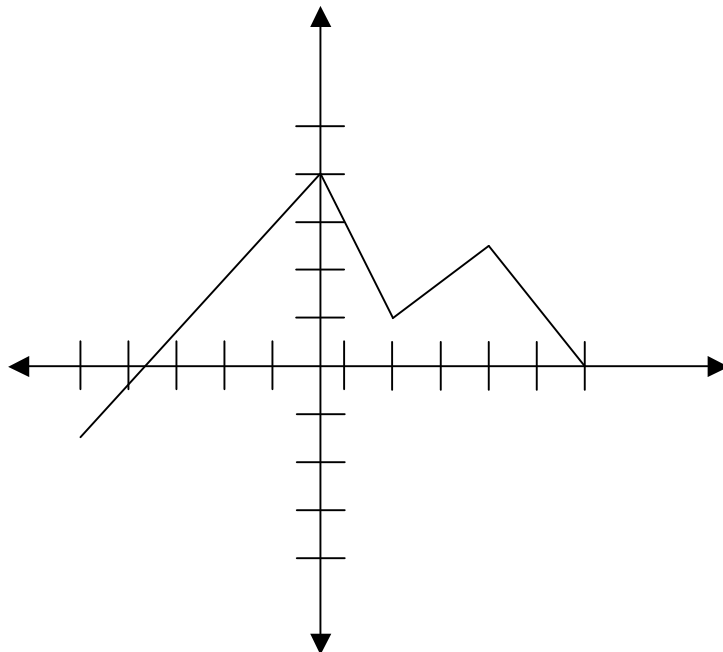
a) Domain

b) Find $f(2)$

c) Find $f(1)$

d) Y-intercept

e) For what x value(s) is $f(x) = 4$



2) Graph each by point plotting:

a) $y = \frac{1}{3}x - 2$

b) $y = |x| + 2$

c) $y = x^3 - 4$

3) Determine which are functions?

a) $\{ (-6, 3), (-1, 3), (-4, -3), (2, -4) \}$

b) $\{ (6, -5), (6, 3), (3, -1), (3, -4) \}$

c) $y = |x| + 2$

4) Given $f(x) = 2x - 3$ and $g(x) = x^2 - 1$ find each:

a) $f(3)$

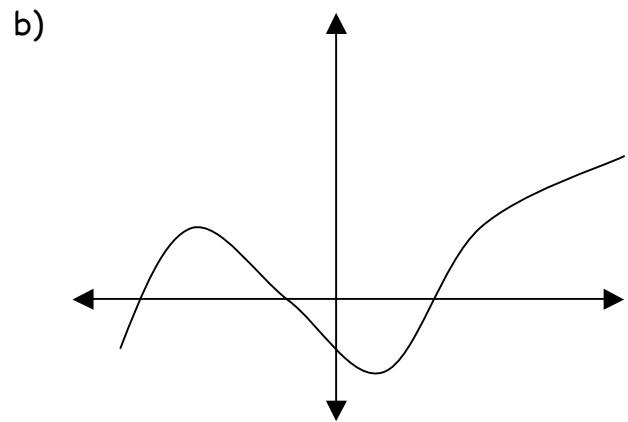
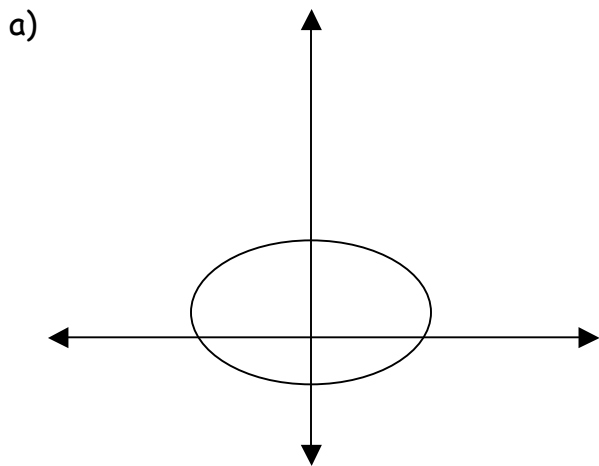
b) $g(-2)$

c) $f(3a)$

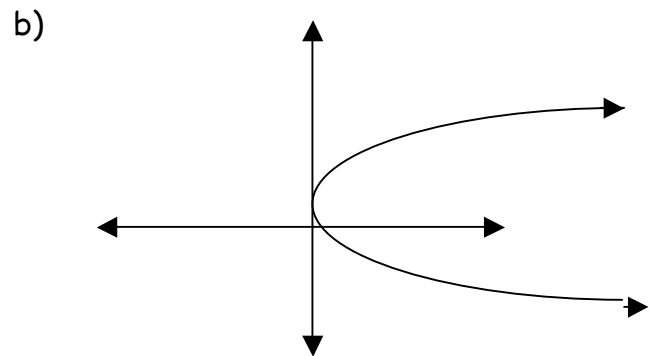
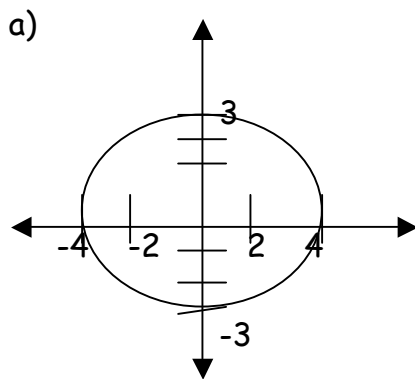
d) $g(3)$

5) Graph the function $f(x) = \frac{1}{2}x^2$

6) Determine if each graph is a function or not:



7) Use the graph to determine the domain and range of each:



8) Perform the indicated operation:

a) $\frac{x^3 - 64}{10x - 5} \cdot \frac{2x^2 + 7x - 4}{3x^2 - 48}$

b) $\frac{x^2 - 3x + xy - 3y}{5x + 5y} \div \frac{x^2 - 7x + 12}{4 - x}$

9) Add or subtract as indicated:

a) $\frac{3}{x+1} + \frac{5}{x-4}$

b) $\frac{3}{5x+5} - \frac{x-2}{x^2-2x-3}$

10) Simplify the complex fraction:

$$\frac{\frac{1}{x} + \frac{3}{x^2}}{x + \frac{27}{x^2}}$$

Solve each:

11) $1 + \frac{1}{x} = \frac{20}{x^2}$

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

12) A painter can finish painting a house in 7 hours. Her assistant takes 9 hours to finish the same job. How long would it take them to complete the job if they were working together? (Round to the nearest tenth if necessary)

13) A car travels 400 miles on level terrain in the same time it travels 160 miles on mountainous terrain. If the rate of the car is 30 miles per hour less in the mountains than on level ground, find its rate in the mountains.

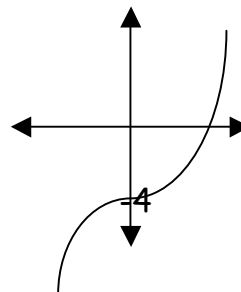
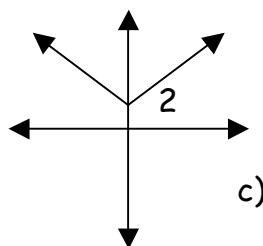
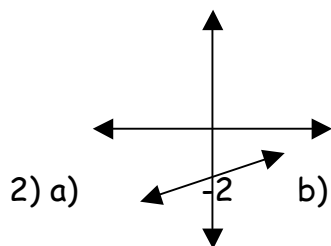
14) Solve the inequality: state your solution in interval notation: $-3 \leq 2x + 1 < 5$

15) Solve the compound inequality, give the solution in interval notation and graph on a number line the solution: $3x + 5 < -7$ or $\frac{1}{2}x - 3 > 2$

16) Solve the absolute value equation: $|4x + 2| - 3 = 5$

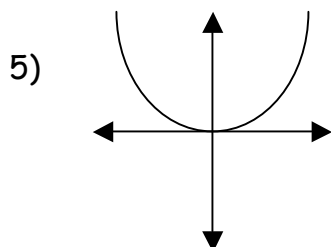
Answers:

1a) $[-5, 6]$ 1b) 1 1c) 3 1d) $(0, 4)$ 1e) 0



3a) yes function 3b) Not function 3c) yes function

4a) 3 4b) 3 4c) $6a - 3$ 4d) 8



6a) Not function

6b) yes function

7a) Domain $[-4, 4]$ Range $[-3, 3]$

7b) Domain: $[0, \infty)$ Range: $(-\infty, \infty)$

8) $\frac{x^2 + 4x + 16}{15}, -\frac{1}{5}$

9) $\frac{8x - 7}{(x + 1)(x - 4)}, \frac{-2x + 1}{5(x + 1)(x - 3)}$

10) $\frac{1}{x^2 - 3x + 9}$

11) $x = -5, 4$ $x = 3$

12) 3.9 hours together

13) 20 mph in the mountains

14) $[-2, 2)$

15) $(-\infty, -4) \cup (10, \infty)$

16) $x = 3/2$ and $x = -5/2$