

Algebra 2 – Review Sec. 4.1 Quiz

1. Find the domain and zeros for the following functions.

a) $f(x) = x^3 + 3x^2 - 70x$

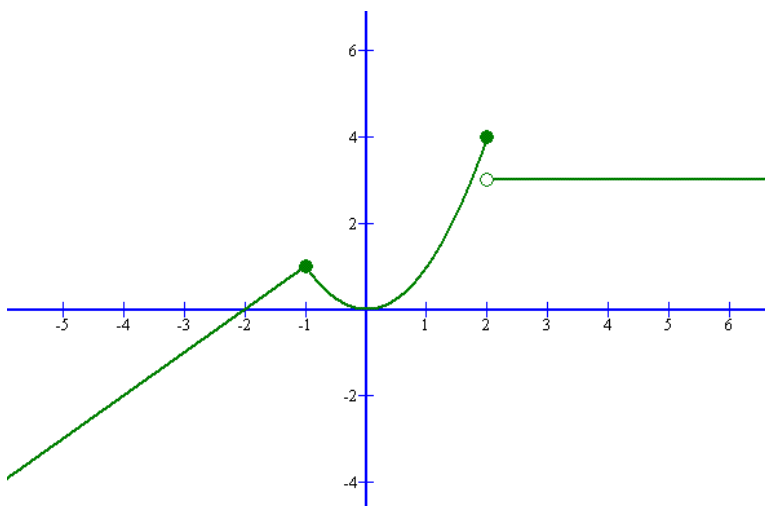
b) $f(x) = \frac{4x-1}{5-x}$

c) $f(x) = \sqrt{x+7}$

d) $f(x) = 2x^2 + 11x - 6$

e) $f(x) = |x - 4|$

2. Find the equation of the following piecewise function. Also find the domain, range, and zeros.



3. Evaluate the following piecewise function at the given values. Then graph the piecewise function and find the domain, range, and zero(s) if any exist.

$$f(x) = \begin{cases} 4 & , -5 \leq x < -1 \\ x^2 - 3 & , -1 \leq x < 2 \\ -2x + 7 & \text{if } x \geq 2 \end{cases}$$

$f(10) =$

$f(0) =$

$f(-1) =$

$f(2) =$

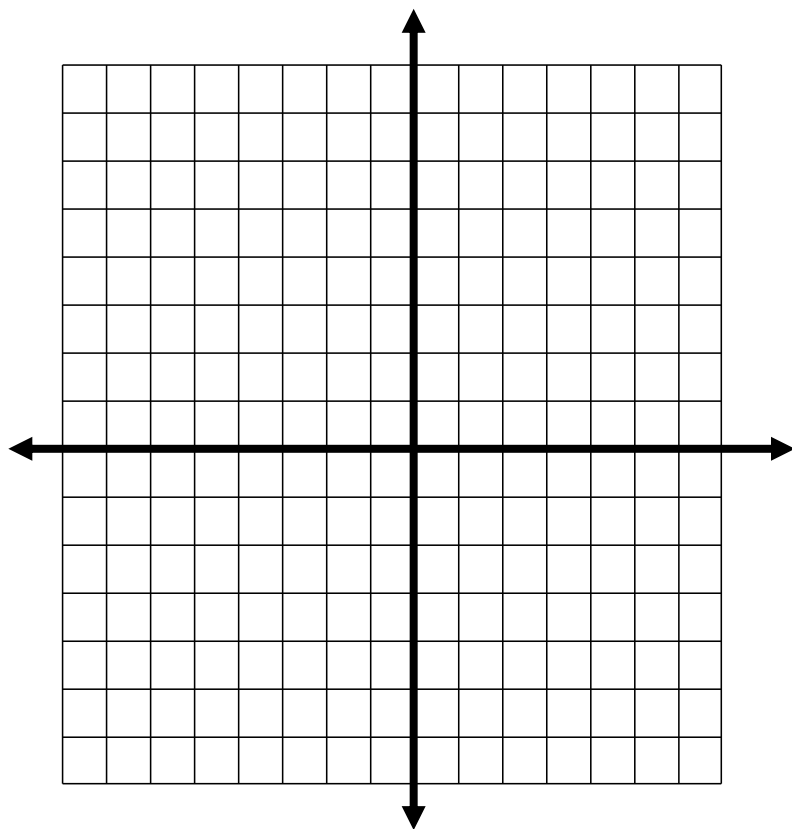
$f(-4) =$

$f(-7) =$

Domain:

Range:

Zeros:



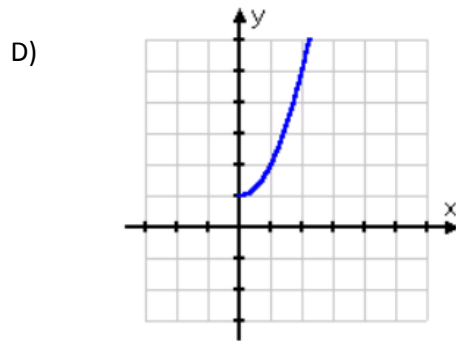
Review 2

1. Find the domain and zeros of the following:

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

b) $f(x) = \sqrt{x+5} - 2$

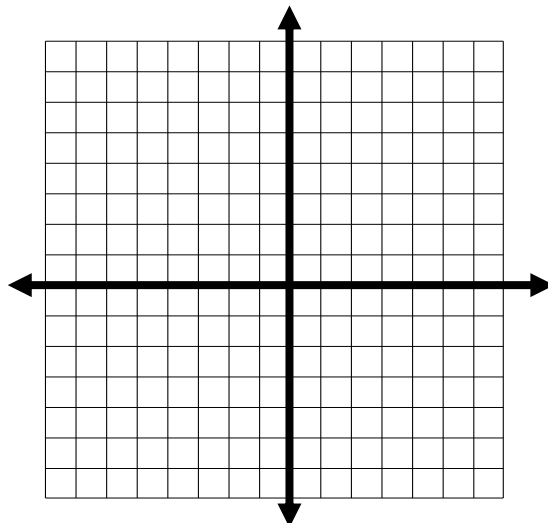
c) $f(x) = x^3 + 3x^2 - 3x - 9$



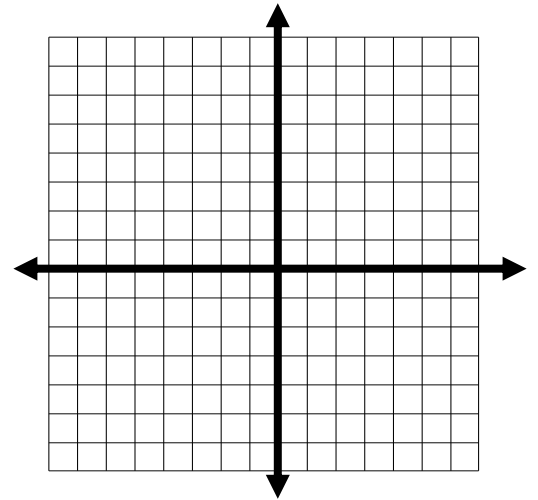
2. Graph the piecewise functions. Then find the domain, range,

a) $f(x) = \begin{cases} -3, & -4 < x \leq 0 \\ x^2 - 1, & x > 0 \end{cases}$ Find $f(1)$ $f(-2)$ $f(0)$

b) $g(x) = \begin{cases} 3x - 4, & x < 0 \\ x^2 + 3, & x \geq 0 \end{cases}$



Find $f(4)$ $f(-2)$ $f(0)$

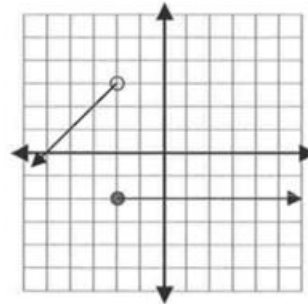
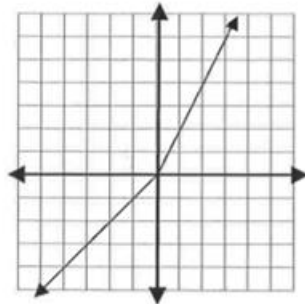


3. In a certain country, income tax is assessed by using the function below, where $f(x)$ is the percentage of the income that must be paid as tax, and x is the amount of income.

$$f(x) = \begin{cases} 0 & \text{if } x \leq \$15,000 \\ 12\% & \text{if } \$15,000 < x \leq \$30,000 \\ 18\% & \text{if } x > \$30,000 \end{cases}$$

- If your income is \$28,000, what amount of tax will you pay?
- If your income is \$14,500, what amount of tax will you pay?
- Your income last year was \$25,000 and your friend's income was \$32,000. How much more did your friend pay in taxes than you?

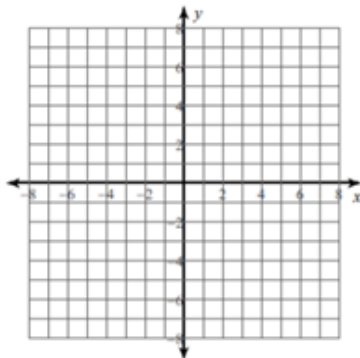
4,5 Write equations for the piecewise functions whose graphs are shown below. Assume that the units are 1 for every tick mark.



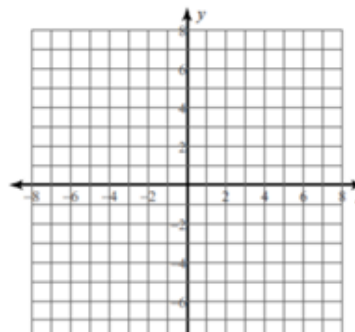
6,7

Sketch the graph of each function.

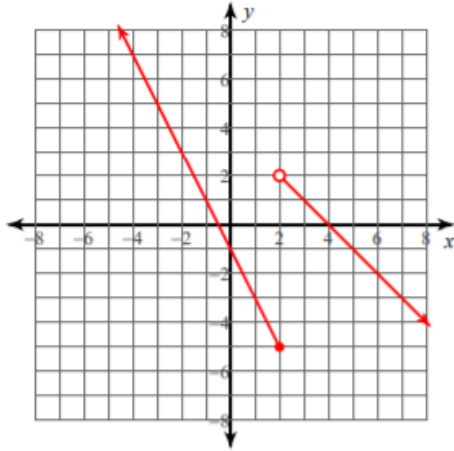
$$f(x) = \begin{cases} -2x - 1, & x \leq 2 \\ -x + 4, & x > 2 \end{cases}$$



$$f(x) = \begin{cases} -4, & x \leq -2 \\ x - 2, & -2 < x < 2 \\ -2x + 4, & x \geq 2 \end{cases}$$

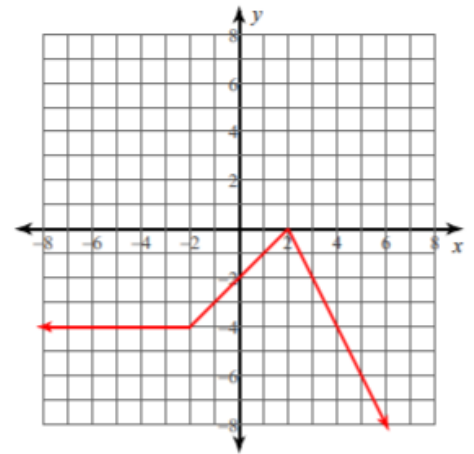


$$1) f(x) = \begin{cases} -2x - 1, & x \leq 2 \\ -x + 4, & x > 2 \end{cases}$$



$$f(x) = \begin{cases} x & x \leq 0 \\ 2x & x > 0 \end{cases}$$

$$2) f(x) = \begin{cases} -4, & x \leq -2 \\ x - 2, & -2 < x < 2 \\ -2x + 4, & x \geq 2 \end{cases}$$



$$f(x) = \begin{cases} x + 5 & x < -2 \\ -2 & x \geq -2 \end{cases}$$