



3. (10 pts) For the function  $f(x) = \sqrt{2x-1}$  :

a. Find the domain of  $f(x)$

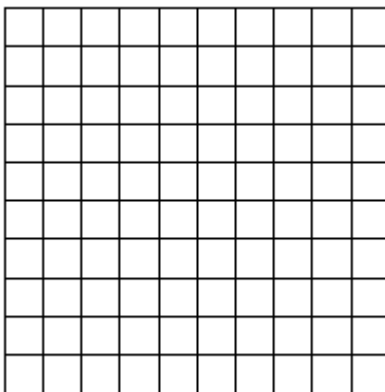
domain: \_\_\_\_\_

b. Find the inverse of  $f(x)$ . Be sure to list its domain!

Inverse function: \_\_\_\_\_

Domain of inverse: \_\_\_\_\_

c. Graph  $f$  and its inverse on the same set of axes.



4. (9 pts) Factor completely:  $x^3 - x^2 - 17x - 15$ .

answer: \_\_\_\_\_

5. (6 pts) Find the determinant of

$$\begin{pmatrix} 1 & 0 & 2 \\ 2 & 3 & 4 \\ 1 & 0 & 3 \end{pmatrix}$$

determinant = \_\_\_\_\_

6. (9 pts) Solve the system of equations:

$$5x - 3y + 2z = 5$$

$$2x - y - z = -3$$

$$3x + y - 4z = -7$$

$x =$  \_\_\_\_\_

$y =$  \_\_\_\_\_

$z =$  \_\_\_\_\_

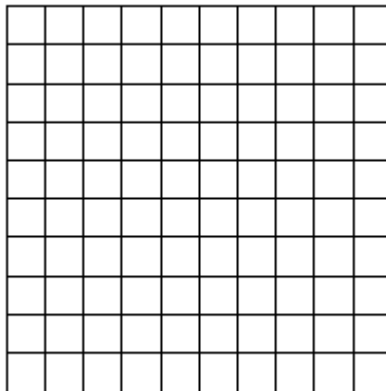
7. (6 pts) Find the equation of the line through the point (2,-2) and perpendicular to  $-4x + 5y = 10$ .

equation: \_\_\_\_\_

8. (6 pts) Solve for  $x$ :  $\log x + \log(x+2) = \log(x+6)$ .

$x =$  \_\_\_\_\_

9. (10 pts) Graph the rational function  $\frac{x-2}{x+2}$ , labelling all  $x$ - and  $y$ -intercepts and all asymptotes.



$x$  - intercept(s): \_\_\_\_\_

$y$ -intercept(s): \_\_\_\_\_

vert. asymptote(s): \_\_\_\_\_

horiz. asymptote(s): \_\_\_\_\_

10. (8 pts) Expand the binomial  $(5x - 2y)^3$ .

expansion: \_\_\_\_\_

11. (10 pts) For the parabola  $y = 2x^2 + 12x + 10$ :

a. Find the  $y$ -intercept.

$y$ -intercept: \_\_\_\_\_

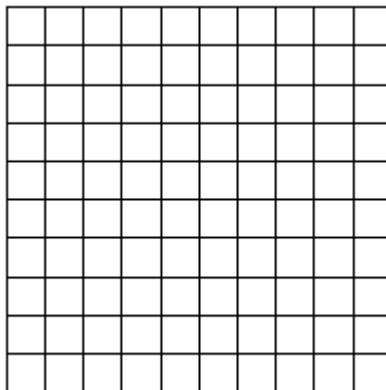
b. Find the  $x$ -intercept(s).

$x$ -intercept(s): \_\_\_\_\_

c. Find the coordinates of the vertex.

vertex: \_\_\_\_\_

d. Graph the parabola (label your axes).



12. (6 pts) Compute  $\sum_{i=1}^6 3(-2)^i$  .

sum: \_\_\_\_\_

13. (6 pts) How many years does it take your money to double in a bank account with continuously compounded interest at a rate of 5%? Write an exact expression for your answer, but leave it unevaluated.

# of years: \_\_\_\_\_