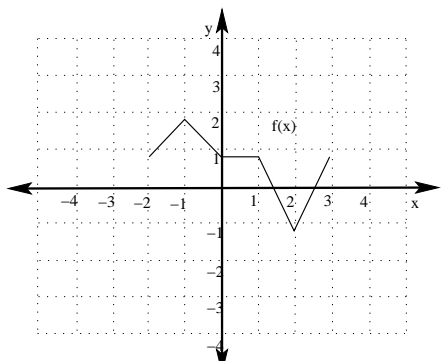
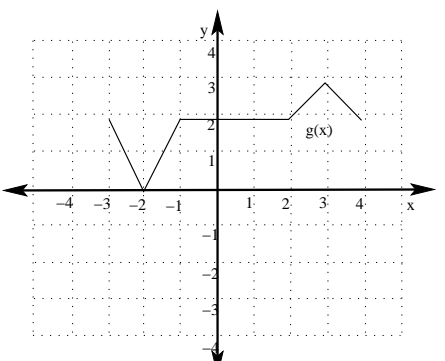


- True or False:
 - Any two distinct points in the plane determine exactly one line.
 - Any line can be written in the form $y = mx + b$.
 - The graph of any circle is symmetric with respect to the origin.
 - If a graph has two points with the same y -coordinate, then it is not the graph of a function $y = f(x)$.
 - Every function $y = f(x)$ has at least one x -intercept.
- Given the points $A(2, -2)$ and $B(-1, 4)$:
 - Find $d(A, B)$
 - Find the midpoint of the line segment containing A and B .
 - Find the equation for the line containing A and B in general form.
 - Find the equation for the circle centered at B containing the point A .
 - Find an equation for the vertical line containing B .
 - Find an equation for the horizontal line containing A .
- Find the equation for each line described below. Put your final answer in slope/intercept form.
 - The line with slope 4 and y -intercept -7
 - The line containing the points $(-4, 1)$ and $(3, -7)$
 - The line parallel to the line $3x - 4y = 12$ passing through the point $(1, 3)$
 - The line perpendicular to the line $5y - 2x = 3$ and having x -intercept -1.
- A 16oz jar of peanut butter cost \$1.78 in 1995. In 2005, a similar jar cost \$2.99.
 - Find a line that models the price of peanut butter over time (hint: you can take $x = 0$ to represent 1995)
 - Use your model to predict the price of peanut butter in 2010.
 - According to your model, when will the price of peanut butter reach \$5.00 for a 16oz jar?
- Given the graphs of $f(x)$ and $g(x)$ shown below, use graph transformations to graph each of the following. Label at least 3 points in your final graph.



$f(x)$



$g(x)$

- $f(x) + 3$
- $g(x - 2)$
- $2f(x) - 1$

- $g(2x)$
- $f(-x) + 1$
- $-\frac{1}{2}g(x)$

- $-f(-x) - 1$
- $-2g(x + 1)$

6. Find the equation for the each of the following circles. Then graph the circle.

- (a) The circle with center $(4, -5)$ and radius 6
- (b) The circle with a diameter passing through the points $(2, -2)$ and $(-4, -2)$
- (c) The circle with center $(2, 1)$ and passing through the point $(5, 5)$

7. Graph the circle with equation $x^2 + y^2 + 4x - 6y - 3 = 0$

8. Find the domain of the following functions (put your answers in interval notation):

- (a) $f(x) = \frac{x^2+x-2}{x^2-4}$
- (b) $f(x) = \frac{\sqrt{4-2x}}{x^2-1}$
- (c) $f(x) = \frac{4}{\sqrt{3x-5}}$
- (d) $f(x) = \frac{\sqrt{3-2x}}{2x^2+x-15}$

9. Given that $f(x) = \sqrt{2x-2}$ and $g(x) = \frac{4}{3x-2}$

- (a) Find $\frac{g}{f}(3)$
- (b) Find $f \circ g(2)$

10. Given that $f(x) = \sqrt{3x-2}$ and $g(x) = x^2 - 4$

- (a) Find $g \circ f(x)$
- (b) Find $f \circ g(x)$
- (c) Find the domain of $g \circ f(x)$. Give your answer in interval notation.
- (d) Find the domain of $\frac{f}{g}$. Give your answer in interval notation.

11. An oil well off the Gulf Coast is leaking, with the leak spreading oil over the surface in the shape of a circle. At any time t , in minutes, after the beginning of the leak, the radius of the circular oil slick on the surface is $r(t) = 4t$ feet. Let $A(r) = \pi r^2$ represent the area of the circle of radius r .

- (a) Find $(A \circ r)(t)$
- (b) Explain what $(A \circ r)(t)$ is in practical terms.

12. Given the tables below, find the following:

x	0	2	4	6	8
f(x)	1	5	8	4	0

x	0	2	4	6	8
g(x)	2	6	5	9	7

- (a) $\left(\frac{f}{g}\right)(8)$
- (b) $(f \circ g)(2)$
- (c) $(g \circ g)(2)$
- (d) $f^{-1}(5)$
- (e) $f(g^{-1}(9))$

13. Determine whether or not the following functions are one-to-one. You must justify your answer to each part.

- (a) $f(x) = 3x - 5$
- (b) $f(x) = x^3 - x$
- (c) $f(x) = 3|x| - 2$
- (d) $g(x) = -\frac{1}{2x}$

14. Use algebra to find the inverse of each of the following functions:

(a) $f(x) = 5x - 4$

(b) $f(x) = \sqrt{x - 4}$

(c) $f(x) = \frac{5x}{3 - x}$

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

15. Solve the following systems of linear equations. Then graph the equations involved to show that your answer is reasonable.

(a) $\begin{cases} y = 3x - 2 \\ x + 2y = 5 \end{cases}$

(b) $\begin{cases} 3x - 2y = 7 \\ x + 2y = 5 \end{cases}$

(c) $\begin{cases} x - 3y = 2 \\ 6y - 2x = 5 \end{cases}$

(d) $\begin{cases} 5x - 4y = 10 \\ 3x + 5y = 12 \end{cases}$

(e) $\begin{cases} x - 2y = 5 \\ -2x + 4y = 10 \end{cases}$

16. Graph each of the following functions:

(a) $f(x) = 4^x$

(b) $f(x) = 5^{-x}$

(c) $f(x) = 2^x - 1$

(d) $f(x) = 2^{x-1}$

17. Solve the following equations:

(a) $3^{2-3x} = 3^{2x+1}$

(b) $5^{4x} = 5^{3x-12}$

(c) $2^{5x+1} = 4^{3-2x}$

18. Suppose you have \$2,000 to invest.

(a) Find the amount you would have after 5 years if you deposit your \$2,000 in an account that pays 6% annual interest compounded monthly.

(b) Find the amount you would have after 5 years if you deposit your \$2,000 in an account that pays 4% annual interest compounded quarterly.

(c) Find the amount you would have after 5 years if you deposit your \$2,000 in an account that pays 5% annual interest compounded continuously.