
MATH 11010: Exam #1 (Spring 2010)

1. Consider $6y + 9x^2 = 15$.

(a) Find the x -intercept(s) of this function.

(b) Find the y -intercept(s) of this function.

2. Find the equation of the circle with endpoints of the diameter at $(8, 6)$ and $(-20, -4)$.

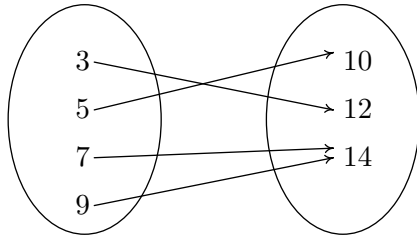
3. Determine which of the following are examples of functions. If it is not a function, state why.

(a) $\{(3, 2), (5, -8), (7, 6), (5, 4), (9, 11)\}$

(b)

x	3	6	9	12	15
y	-5	8	12	8	9

(c)



4. Give an example of a graph that is **NOT** a function, and tell why it is not a function.

5. Given $f(x) = 2x^2 + 7x - 9$, find and simplify:

(a) $f(-2) =$

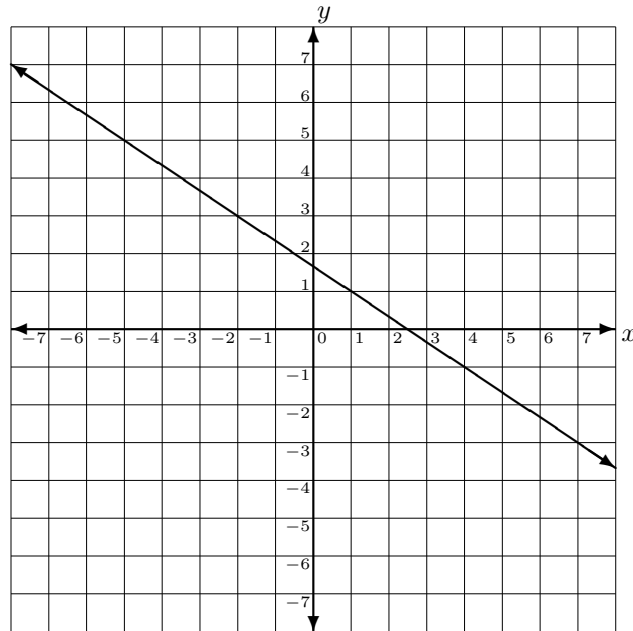
(b) $f(x + h) =$

6. Find the domain for each function.

(a) $f(x) = \frac{5x - 6}{8x^2 + 14x - 15}$

(b) $g(x) = \frac{\sqrt{5 - 4x}}{2x + 15}$

7. Given below is a linear function.



- (a) Find the slope of this linear function.
- (b) Find the equation of this linear function.
8. Find the slope of the line passing through $\left(\frac{3}{4}, -5\right)$ and $\left(-3, \frac{5}{2}\right)$.
9. Find the equation of the line with slope $m = \frac{2}{3}$ and which passes through $(4, -2)$.
10. Find the equation of the line perpendicular to $3x - 5y = 4$ and which passes through $(2, -5)$.
11. Determine the equation of the line parallel to the x -axis that passes through $(3, 6)$.
12. *Tennis Pros* experienced fixed costs of \$1250 and variable costs of \$14 for each tennis racquet that is restrung.
- (a) Write an equation that can be used to determine the total cost $C(x)$ encountered by *Tennis Pros* when x racquets are restrung.
- (b) Calculate the total cost when 15 racquets are restrung.

(c) Calculate $C(20)$ and interpret this value in the context of the problem.

13. Find the following if $h(x) = \begin{cases} 9x^2 - 3x + 1 & \text{if } x \leq -2 \\ 3 - 5x & \text{if } -2 < x < 4 \\ 2x^2 + 3 & \text{if } x \geq 4 \end{cases}$

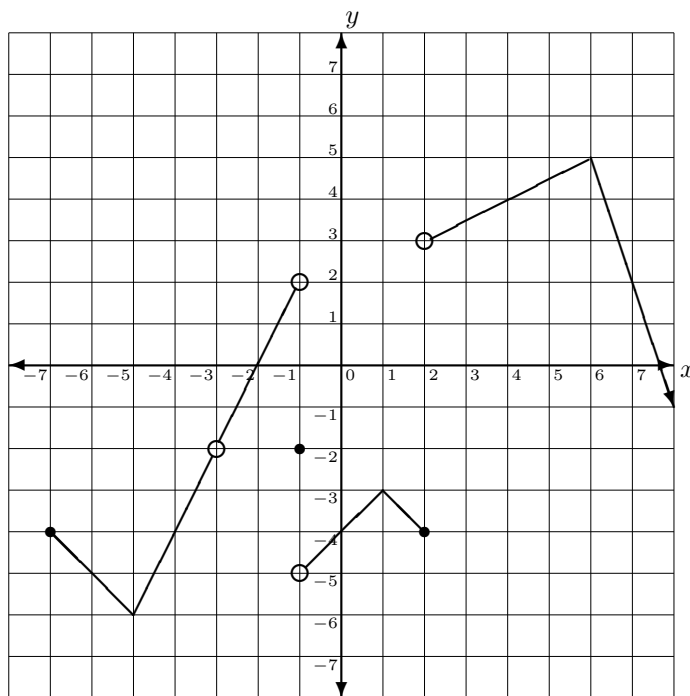
(a) $h(5) =$

(b) $h(-2) =$

(c) $h(1) =$

14. Graph $f(x) = \begin{cases} 3x + 4 & \text{if } x \leq -2 \\ 1 & \text{if } -2 < x \leq 3 \\ -2x + 8 & \text{if } x > 3 \end{cases}$

15. Given below is the graph of f . Find



(a) Domain of f

(c) $f(-1) =$

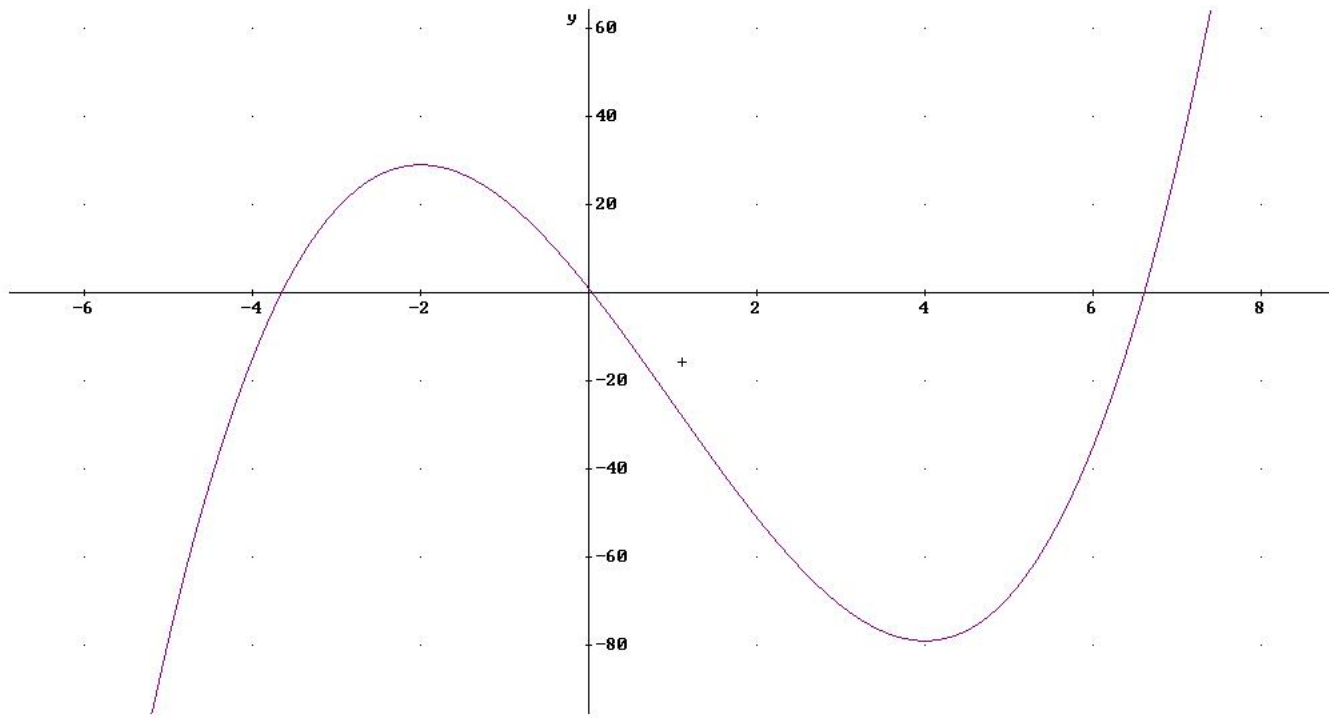
(e) $f(-3) =$

(b) Range of f

(d) $f(2) =$

(f) $f(7) =$

16. Below is the graph of $f(x) = x^3 - 3x^2 - 24x + 1$.



- Identify any relative minimum/minima.
- Identify any relative maximum/maxima.
- Determine the intervals for which f is increasing.
- Determine the intervals for which f is decreasing.