

Prob.	1	2	3	4	5	6	7	8	Total
Value	7	12	7	16	28	14	8	8	100
Points									

"It has been my observation that most people get ahead during the time that others waste." -Henry Ford

Recall, it is your job to demonstrate the extent to which you understand each problem, this means *write mathematics*. A good write-up includes: **connecting your work**, proper notation, and an explanation of steps as you see necessary.

1. Write each inequality using interval notation.

(a) $\{x \mid -6 \leq x < -1\}$

(b) $\{x \mid x \leq -3\}$

2. Simplify the expression (completely).

(a) $\frac{2}{(-3)^{-3}} - 3^2$

(b) $\frac{10 - 2 + 3 \cdot 4}{[18 - 3(-2)^2]^2}$

3. Find the indicated function values for, $f(x) = \frac{2x - 3}{x - 4}$.

(a) $f(3)$

(b) $f(a + h)$

4. Solve each equation:

(a) $5x - (x + 2) = x + 2(3x - 5)$

(b) $\frac{x+3}{6} = \frac{2}{3} - \frac{x+3}{4}$

5. Completely simplify each expression:

(a) $\frac{32x^2y^7}{(-4xy^3)^2} - \frac{y}{2}$

(b) $\left(-\frac{1}{2}\right)^2 \left(\frac{x^{-3}}{x^2}\right)^{-2}$

(c) $(-3x^4)^2 (-2x^{-2})^0 - 2^3$

(d) $\left(-\frac{1}{5}x^3y^4z^5\right) \left(-\frac{1}{15}x^2y^1z^5\right)^{-1}$

6. Use the graph of the function f to answer the questions below.

(a) Identify the domain of the function f
(use interval notation for your answer).

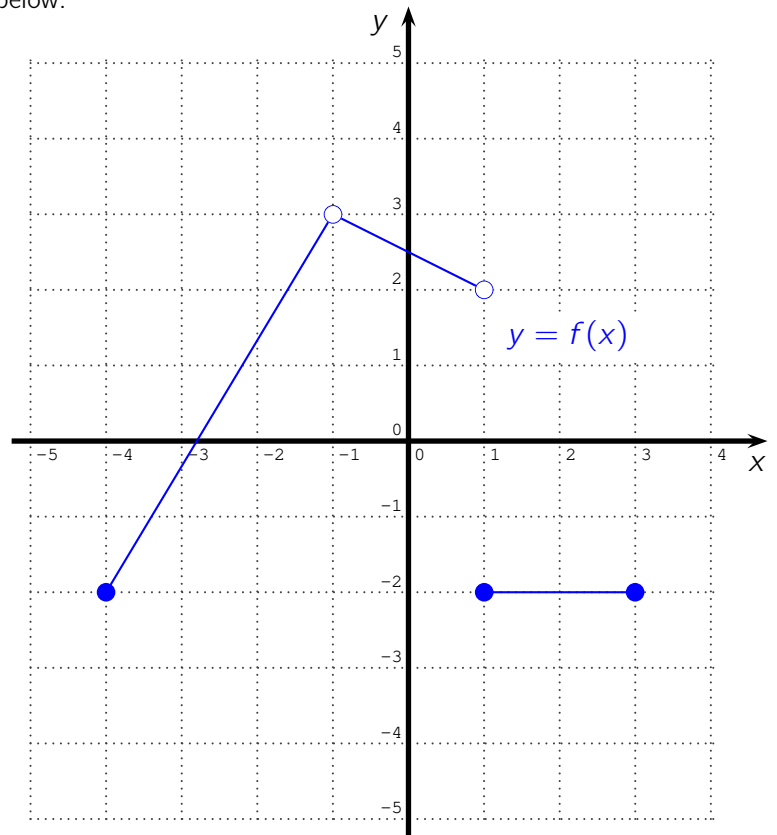
(b) Identify the range of the function f
(use interval notation for your answer).

(c) On the same axis, sketch a graph of:

$$g(x) = f(x) - 3$$

sketch all important features and label your graph.

(d) Use your graphs to find $(f + g)(1)$
(remember that means $f(1) + g(1)$).



7. Find an equation for the line passing through $(1, 9)$ and $(4, -2)$.

8. Find an equation for the line passing through $(-2, 3)$ and parallel to the line with equation $2x - 3y = \frac{7}{5}$.