Intermediate Algebra Questions (worksheet 1)

Q1. Choose the correct answer.

(a) If $f(x) = 3x^3 - 7x + 5$, then $f(-1) =$

A. 1 **B.** -1 **C.** 9 **D.** 8

(b) Which of these values of x satisfies the inequality $-2x + 4 \leq -6$

A. 5 **B.** 0 **C.** -2 **D.** -6

(c) The domain of the function $f(x) = \sqrt{x+2}$ is given by

A. $x > 2$ **B.** $x > -2$ **C.** $x \geq 2$ **D.** $x \geq -2$

(d) The lines $x = 3$ and $y = -2$ are

A. Parallel **B.** Perpendicular

C. Neither parallel nor perpendicular **D.** none of these

(e) The equation $|3x + 1| = k$ has no solutions if $k =$

A. 0 **B.** 3 **C.** 1 **D.** -1

(f) Which of the following statements is **ALWAYS** true?

A. A function is not a relation

B. Every function is a relation

C. Every relation is a function

D. A relation is not a function

(g) Which of these inequalities has **NO** solutions?

A. $2x + 4 > 1$

B. $|x| > -5$

C. $|x| < -10$

D. $-x + 3 \geq 5$

(h) A system of two linear equations with two variables is independent if it has

A. Two solutions

B. One solution

C. No solutions

D. Many solutions

(i) The lines $y = (a + 1)x + 3$ and $y = -3x + 2$ are parallel if $a =$

A. -4

B. 4

C. -3

D. 3

(j) Which of these points is on the graph of the equation 2x + 3y = 7?

A. $(2, 3)$

B. $(0, 3)$

C. $(-1, 3)$

D. $(3, 0)$

Q2. Solve the following inequality:

$$\frac{2x-1}{-3} < -5$$

Q3. A rectangular field has a perimeter of 104 meters. The length of the field is 12 meters more than its width. Find the length and the width of this field.

Q4. Solve the following equations:

b. $4|2x + 5| = 12$

c. $(2x + 1)^2 = 25$

d. $2x^2 + 9x + 5 = 0$

Q5. Solve the following inequality and write the answer in interval notation.

$|2x + 1| + 3 \geq 7$

Q6. Solve the following system of equations

$2x + 3y = 5$

$3x + 7y = 15$

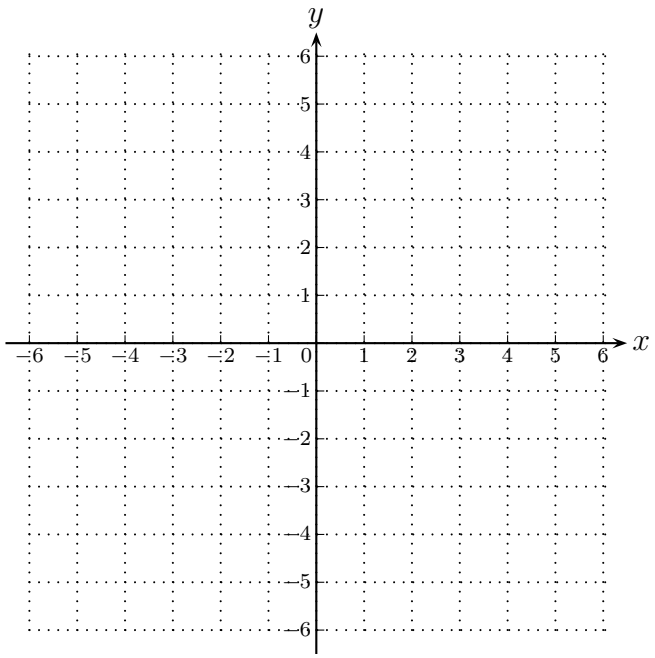
Q7. $3x + 4y = 12$ is the equation of line L.

a. Find the x intercept of line L.

b. Find the y intercept of line L.

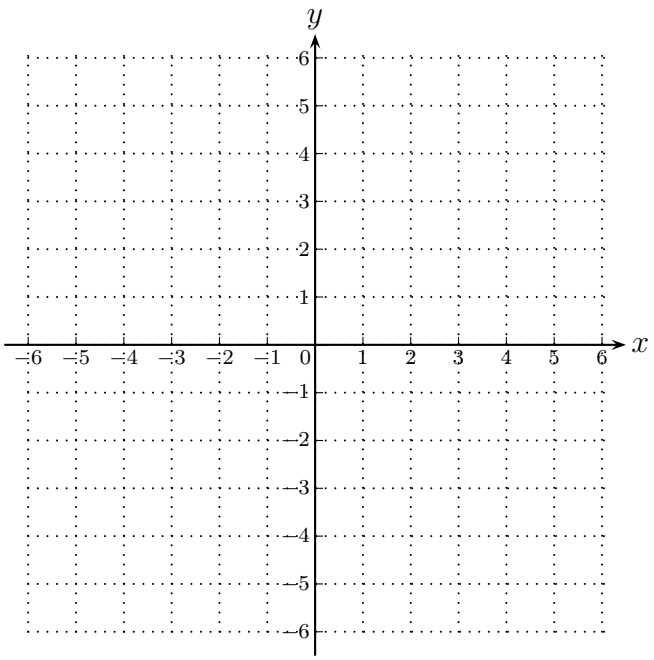
c. Find the slope of line L.

d. Graph line L.



Q8. Consider the relation $A = \{(2, -1), (-1, 0), (-2, 3), (-3, -2)\}$.

a. Graph the ordered pairs in A.



b. Does A represent a function? Explain your answer.

c. Find the domain of A.

d. Find the range of A.

e. Find all possible values of x so that the relation $B = \{(2, -1), (-1, 0), (-2, 3), (x, -2)\}$ is not a function.

Q9. Consider the line segment PQ with endpoints $P(-2, 1)$ and $Q(4, 5)$.

a. Find the length of segment PQ.

b. Find the midpoint of segment PQ.

c. Find the slope of the line through the points P and Q.

d. Find the equation of the line that passes through the point $(1, 1)$ and is perpendicular to the line through P and Q.

Q10. One night, a hotel manager rented 15 single rooms and 36 double rooms for a total of 3900 $ per night. The next night, he rented 27 single rooms and 30 double rooms for a total 4120 $ per night.

a. How much does the manager charge for each type of room per night?

b. How much does it cost to rent 9 single rooms and 6 double rooms per night?