

ALEKS® Linear Equations and Inequalities Quiz #1

Beginning and Intermediate Algebra Combined / MATH 102 - Fall 2014 – 504 (Prof. Miller)

Student Name/ID:

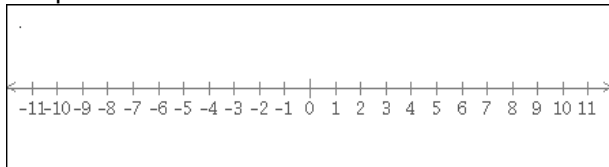
Instructor Note:

Directions: Every problem is worth two points. One point is for trying the problem and showing your work and one point is for getting the correct answer. There are an additional five points for demonstrating the study strategy that is posted on the board and talked about at the beginning of class.

1. Solve the compound inequality.

$$-12 \leq 4x + 4 < 16$$

Graph the solution on the number line.



2. Solve the inequality for y

$$\frac{5}{8}y - 1 > 6y - \frac{3}{2}$$

Simplify your answer as much as possible.

3. Rewrite the set Q by listing its elements. Make sure to use the appropriate set notation.

$$Q = \{ z \mid z \text{ is an integer and } 1 \leq z < 3 \}$$

4. Tom is going to rent a truck for one day. There are two companies he can choose from, and they have the following prices.

Company A charges \$100 and allows unlimited mileage.

Company B has an initial fee of \$65 and charges an additional \$0.70 for every mile driven.

For what mileages will Company A charge less than Company B?

Use m for the number of miles driven, and solve your inequality for m

5. Solve the inequality for u

$$-13 < 7 - 5u$$

Simplify your answer as much as possible.

6. Solve for u

$$|u| - 16 = -8$$

7. The sets F and H are defined as follows.

$$F = \{x | x > 1\}$$

$$H = \{x | x \leq 6\}$$

Write $F \cup H$ and $F \cap H$ using interval notation.

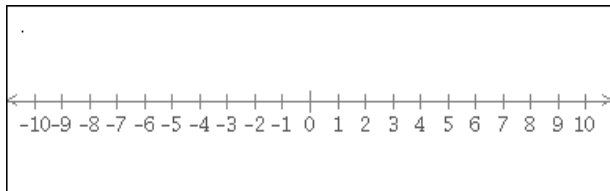
If the set is empty, write \emptyset

8. Solve for w

$$|w| = 5$$

9. Graph the compound inequality on the number line.

$$x \leq 0 \text{ or } x > 5$$



10. Write inequalities to represent the situations below.

The cargo of the truck weighs no more than 2,300 pounds.

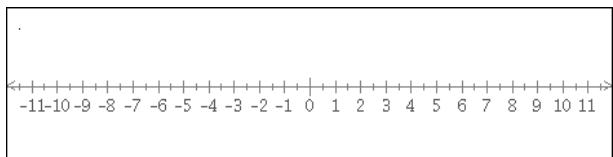
Use w to represent the weight (in pounds) of the cargo.

The temperature inside the lab refrigerator is less than 40 °F.

Use t to represent the temperature (in °F) of the refrigerator.

11. Graph the solution to the inequality on the number line.

$$|u - 2| > 6$$



12. The sets A and E are given below.

$$A = \{ 1, 2, 3, 4, 6 \}$$

$$E = \{ 0, 2, 3, 8 \}$$

Find the union of A and E

Find the intersection of A and E

Write your answers using set notation.

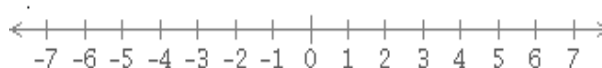
13. Solve the compound inequality.

$$2w - 3 \leq 5 \quad \text{or} \quad 4w - 6 < -10$$

Write the solution in interval notation.

If there is no solution, enter \emptyset

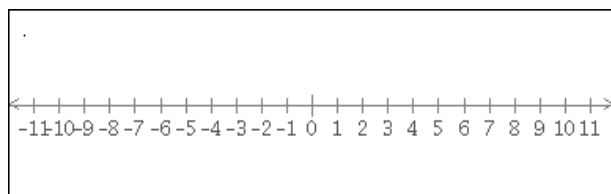
14. Graph the set $\{x \mid -2 \leq x < 0\}$ on the number line.



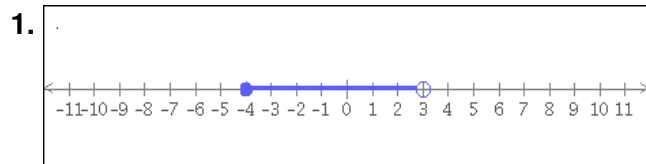
Then, write the set using interval notation.

15. Graph the inequality below on the number line.

$$b < -9$$



Linear Equations and Inequalities Quiz #1 Answers for class Beginning and Intermediate Algebra Combined / MATH 102 - Fall 2014 – 504



2. $y < \frac{4}{43}$

3. $Q = \{1, 2\}$

4. $m > 50$

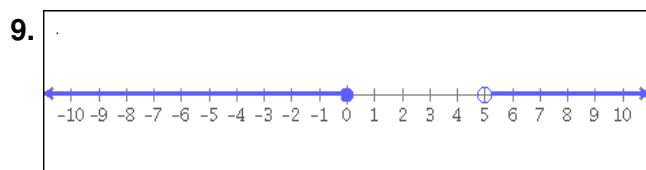
5. $u < 4$

6. $u = 8, -8$

7. $F \cup H = (-\infty, \infty)$

$F \cap H = (1, 6]$

8. $w = 5, -5$



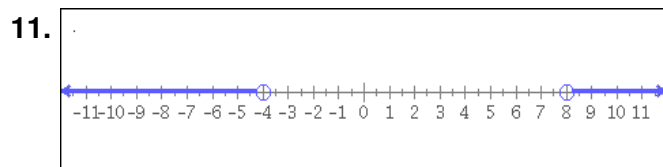
10. **The cargo of the truck weighs no more than 2,300 pounds.**
Use w to represent the weight (in pounds) of the cargo.

$w \leq 2,300$

The temperature inside the lab refrigerator is less than 40 °F.

Use t to represent the temperature (in °F) of the refrigerator.

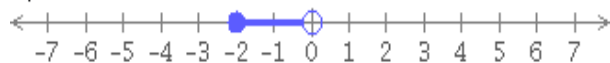
$t < 40$



12. $A \cup E = \{0, 1, 2, 3, 4, 6, 8\}$
 $A \cap E = \{2, 3\}$

13. $(-\infty, 4]$

14.



$$\{x \mid -2 \leq x < 0\} = [-2, 0)$$

15.

