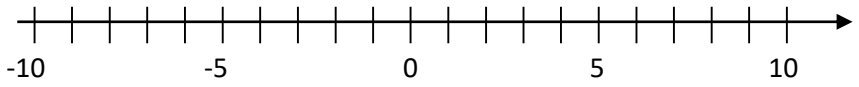
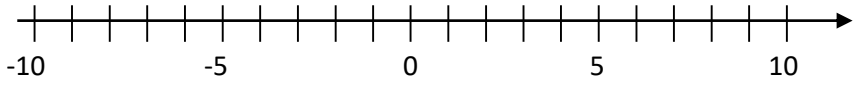
Algebra CC
Assignment #20
Solving Linear Inequalities
*** Optional**

1. Solve the inequality using the properties of inequality and graph the final solution set on the number line provided.

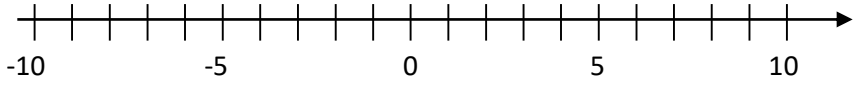
*(a) $5x - 6 \leq 24$



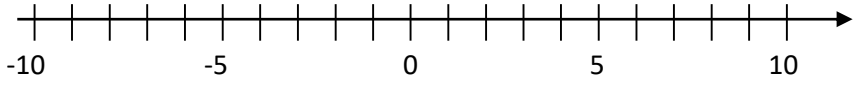
*(b) $2(5 - x) \leq 12$



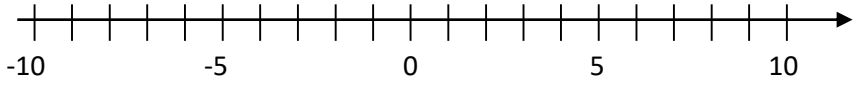
*(c) $6 - 4x > 18$



(d) $8x - 6(x - 2) > 20 - 2x$



(e) $\frac{3(2x+2)}{6} > \frac{1}{3}x + 2$



2. Two siblings Edwin and Rhea are both going skiing but choose different payment plans. Edwin's plan charges $45 for rentals and $5.25 per lift up the mountain. Rhea's plan was a bundle where her entire day cost $108.

   (a) Set up an inequality that models the number of trips, *n*, up the mountain for which Edwin will pay more than Rhea. Solve the inequality.

   (b) What is the greatest amount of trips that Edwin can take up the mountain and still pay less than Rhea? Explain how you arrived at your answer.

3. Given a, b, c, d are all positive, solve the following inequalities for x.

   (a) $ax + b \geq cd$

   *(b) $\frac{a(x+2)}{b} > c$

4. If $ax + b > d$ and $a < 0$ then

   (1) $x > \frac{d-b}{a}$ (2) $x < \frac{d-b}{a}$ (3) $x < \frac{d}{a} - b$ (4) $x > \frac{d}{a} - b$

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*R1. What is the solution of -17 = -2n + 13 – 8n?

R2. Simplify the following: $-3xy(5x^2 - 8xy^3 + 10)$

*R3. Is **4x – 12** an *algebraic expression* or an *algebraic equation*? How do you know?

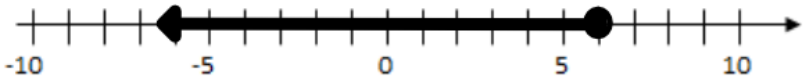
*R4. Which property of equality should you use to solve 5x = 25?

R5. What is the simplified form of $6x + 7 - 5x^2 + 4x$?

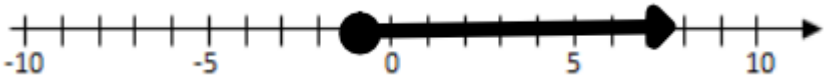
R6. Solve for m in terms of d: 8m – 6d = 10d

1.

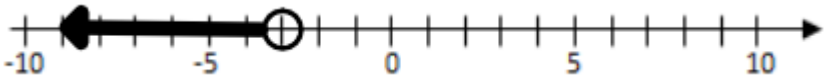
(a) $x \leq 6$



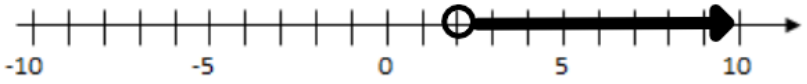
(b) $x \geq -1$



(c) $x < -3$



(d) $x > 2$



(e) $x > \frac{3}{2}$

2. (a) $45 + 5.25n > 108$
(b) 11 trips, at 12 trips their cost will be equal

3. (a) $x \geq \frac{cd-b}{a}$

(b) $x > \frac{bc}{a} - 2$

4. (2)

R1. n=3

R2. $-15x^3 + 24x^2y^4 - 30xy$

R3. It is *algebraic expression* because there is no equal sign.

R4. Multiplicative property of equality

R5. $-5x^2 + 10x + 7$

R6. m = 2d