Unit II – First Degree Relations with One Placeholder
Part D – Systems of Equations and Inequalities
Lesson 1 – Compound Sentences with "and"

Find the solution set for each of the following compound sentences (systems) and show those solution sets both on a number line and in set notation.
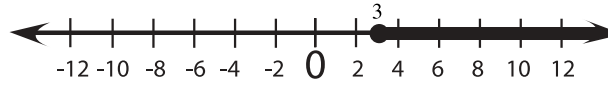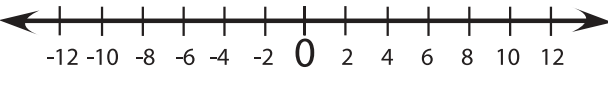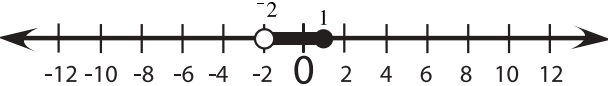
1. $^-2 \leq 3x + 10$ and $5 > 2x - 3$

2. $7 - 6x \leq 19$ and $19 - 5x \leq 4$

3. $x + 5 > 8$ and $7x < {}^-14$

4. $1 \leq 6 - 5x < 16$

5. $2m + 2(3m - 6) \leq 40$ and $m > 0$ and $0 < 3m - 6$

6     $3x - 10 < 5x + 2 < 3x + 4$

7. $18 < 5t + 6 < 50$ and t is an even integer

8. $^-0.7 \leq 3x - 4.3 \leq 8$
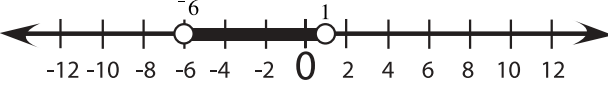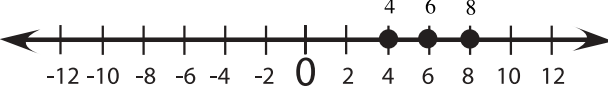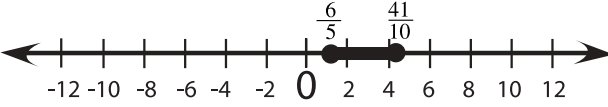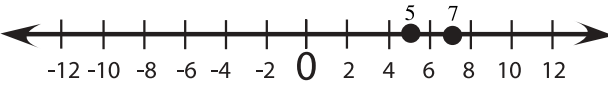
9. $8 < 4x - 7 < 22$ and x is an odd integer

10. $4x + 2(6x - 8) < 100$ and $x > 0$ and $4x + 8 > 0$

EXTRA PRACTICE — Answer Key

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Lesson 1 – Compound Sentences with "and"

Find the solution set for each of the following compound sentences (systems) and show those solution sets both on a number line and in set notation.

1. $S = \{\, x \mid x \geq {}^{-}4 \text{ and } x < 4 \,\}$

   $S = \{\, x \mid {}^{-}4 \leq x < 4 \,\}$

2. $S = \{\, x \mid x \geq {}^{-}2 \text{ and } x \geq 3 \,\}$

   $S = \{\, x \mid x \geq 3 \,\}$

3. $S = \{\, x \mid x > 3 \text{ and } x < {}^{-}2 \,\}$

   $S = \{\quad\}$

4. $S = \{\, x \mid x > {}^{-}2 \text{ and } x \leq 1 \,\}$

   $S = \{\, x \mid {}^{-}2 < x \leq 1 \,\}$

5. $S = \{\, m \mid m \leq \dfrac{13}{2} \text{ and } m > 0 \text{ and } m > 2 \,\}$

6. $S = \{\, x \mid x > {}^{-}6 \text{ and } x < 1 \,\}$

   $S = \{\, x \mid {}^{-}6 < x < 1 \,\}$

7. $S = \{\, t \mid t > \dfrac{12}{5} \text{ and } t < \dfrac{44}{5} \text{ and } t \text{ is an even integer} \,\}$

   $S = \{4, 6, 8\}$

8. $S = \{\, x \mid \dfrac{6}{5} \leq x \text{ and } x \leq \dfrac{41}{10} \,\}$

9. $S = \{\, x \mid \dfrac{15}{4} < x \text{ and } x < \dfrac{29}{4} \text{ and } x \text{ is odd} \,\}$

10. $S = \{\, x \mid x < \dfrac{29}{4} \text{ and } x > 0 \text{ and } x > {}^{-}2 \,\}$