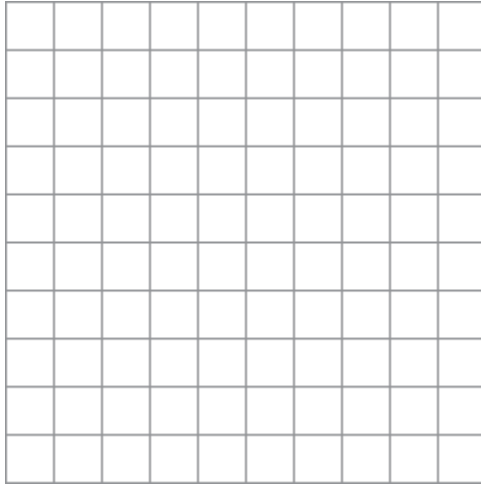


**Ch. 2 Review**

-

1. Suppose an elevator starts at the top floor of a high-rise building at a height of 372 feet above the ground floor and descends without stopping at a constant rate of 15 feet per second.
  - a. Write a function that describes the height,  $h$ , of the elevator after  $t$  seconds.
  - b. Graph the function that you wrote in part (a).



- c. Estimate when the elevator is at a height of 200 feet.
    - d. Determine the exact time that the elevator is at a height of 200 feet.
2. Evaluate the function  $f(x) = 31.572x - 17.741$  at each of these values.
  - a.  $f(6.2)$
  - b.  $f(-27.018)$

3. Solve the inequality and graph the solution on the number line.

$$-4(x + 1) \geq 12$$



-

4. Elena works a part-time job after school to earn money for a summer vacation. She is paid a constant rate for each hour she works. The table shows the amounts of money that Elena earned for various amounts of time that she worked.

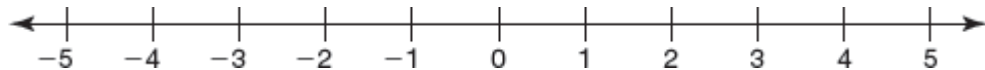
|            | Time Worked | Amount Earned |
|------------|-------------|---------------|
| Units      | Hours       | Dollars       |
|            | 2.5         | 22.50         |
|            | 3           | 27.00         |
|            | 3.5         | 31.50         |
|            | 4.5         |               |
|            | 5           |               |
|            | 6           |               |
| Expression | $t$         |               |

- What are the dependent and independent quantities in this problem situation? Explain your reasoning.
  - Determine the unit rate of change for the problem situation.
  - Complete the table. Write an expression that represents the amount of money Elena earns for an arbitrary time worked of  $t$  hours.
  - Use function notation to determine the amount of money that Elena earns for working 7.5 hours.
5. Solve the equation and justify your reasoning.

$$-4(x + 1) - 9 = -12x + 11$$

6. Graph the compound inequality on the number line.

$$x > -3 \text{ and } x \leq 2$$



7. Evaluate each expression. Show your work.

a.  $|-7 - 6|$

b.  $\left| \frac{36}{-4} \right|$

8. Solve the absolute value equation.

$$|-2x + 7| = 11$$

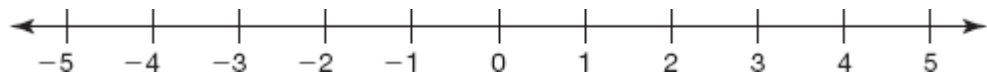
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9. A number is less than 24 or greater than 35. Write a compound inequality that represents the possible values of the number. Then graph the compound inequality on the number line.



10. Solve the linear absolute value inequality. Then graph the solution on the number line.

$$8 \leq |3x - 2|$$



-

11. Alex saved \$65. He has already spent \$25. He plans to spend \$8 on a movie ticket each month. Which inequality represents the number of movie tickets he can buy?

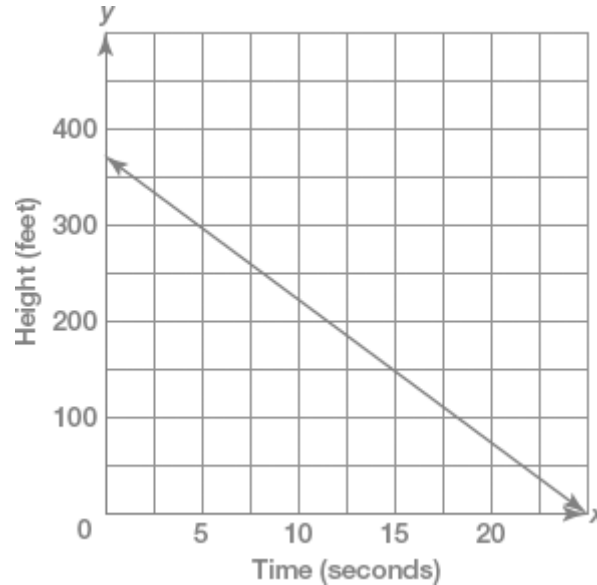
- a.  $8t + 25 \leq 65$
- b.  $8t - 25 \leq 65$
- c.  $-8t + 25 \leq 65$
- d.  $-8t - 25 \leq 65$

**Ch. 2 Review**  
**Answer Section**

1. ANS:

a.  $h(t) = -15t + 372$  or  $h(t) = 372 - 15t$

b.



c. The graph appears to show the elevator at 200 feet after about 12 seconds.

d.  $h(t) = -15t + 372$

$$200 = -15t + 372$$

$$200 + 15t = -15t + 15t + 372$$

$$200 + 15t = 372$$

$$200 - 200 + 15t = 372 - 200$$

$$15t = 172$$

$$t = 11.\overline{46} \text{ seconds}$$

PTS: 1 REF: 2.2

NAT: A.REI.3 | A.CED.1 | A.CED.2 | N.Q.1 | A.SSE.1.a | A.REI.10 | N.Q.3 | F.IF.2 | F.IF.6

TOP: Pre Test

2. ANS:

a.  $f(x) = 31.572x - 17.741$

$$f(6.2) = 31.572(6.2) - 17.741$$

$$f(6.2) = 178.0054$$

b.  $f(x) = 31.572x - 17.741$

$$f(-27.018) = 31.572(-27.018) - 17.741$$

$$f(-27.018) = -870.753296$$

PTS: 1 REF: 2.2  
 NAT: A.REI.3 | A.CED.1 | A.CED.2 | N.Q.1 | A.SSE.1.a | A.REI.10 | N.Q.3 | F.IF.2 | F.IF.6  
 TOP: Pre Test

3. ANS:

$$-4x - 4 \geq 12$$

$$-4x \geq 16$$

$$x \leq -4$$



PTS: 1 REF: 2.3  
 NAT: A.CED.1 | A.CED.2 | A.CED.3 | A.REI.3 | A.REI.10 | N.Q.3  
 TOP: Pre Test KEY: solve an inequality

4. ANS:

a.

|            | Time Worked | Amount Earned |
|------------|-------------|---------------|
| Units      | Hours       | Dollars       |
|            | 2.5         | 22.50         |
|            | 3           | 27.00         |
|            | 3.5         | 31.50         |
|            | 4.5         | <b>40.50</b>  |
|            | 5           | <b>45.00</b>  |
|            | 6           | <b>54.00</b>  |
| Expression | $t$         | $9t$          |

a. The amount of money Elena earns depends on the time she works in hours, so the dependent quantity is the amount of money earned and the independent quantity is the time Elena worked in hours.

b. The unit rate of change is \$9 per hour.

c. See table.

d.  $d(t) = 9t$

$$d(7.5) = 9(7.5)$$

$$d(7.5) = 67.50$$

Elena earns \$67.50 for working 7.5 hours.

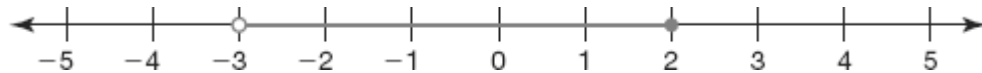
PTS: 1 REF: 2.1  
NAT: A.REI.1 | A.REI.3 | A.REI.10 | A.CED.1 | A.CED.2 | N.Q.1 | A.SSE.1.a | F.IF.2 | F.IF.6  
TOP: Post Test KEY: first differences | solution | point of intersection

5. ANS:

$$\begin{aligned} -4x - 4 - 9 &= -12x + 11 \\ -4x - 13 &= -12x + 11 \\ -4x - 13 + 13 &= -12x + 11 + 13 \\ -4x &= -12x + 24 \\ -4x + 12x &= -12x + 12x + 24 \\ 8x &= 24 \\ \frac{8x}{8} &= \frac{24}{8} \\ x &= 3 \end{aligned}$$

PTS: 1 REF: 2.1  
NAT: A.REI.1 | A.REI.3 | A.REI.10 | A.CED.1 | A.CED.2 | N.Q.1 | A.SSE.1.a | F.IF.2 | F.IF.6  
TOP: Post Test KEY: first differences | solution | point of intersection

6. ANS:



PTS: 1 REF: 2.4 NAT: A.CED.1 | A.CED.2 | A.REI.3  
TOP: Post Test KEY: solution of a compound inequality | conjunction | disjunction

7. ANS:

a.  $|-13| = 13$

b.  $|-9| = 9$

PTS: 1 REF: 2.5 NAT: A.CED.1 | A.CED.2 | A.CED.3 | A.REI.3 | A.REI.10  
TOP: Post Test  
KEY: opposites | absolute value | absolute value equation | absolute value inequality | equivalent compound inequality

8. ANS:

$$\begin{aligned} (-2x + 7) &= 11 & -(-2x + 7) &= 11 \\ -2x + 7 &= 11 & -2x + 7 &= -11 \\ -2x &= 4 & -2x &= -18 \\ x &= -2 & x &= 9 \end{aligned}$$

PTS: 1 REF: 2.5 NAT: A.CED.1 | A.CED.2 | A.CED.3 | A.REI.3 | A.REI.10  
TOP: Post Test  
KEY: opposites | absolute value | absolute value equation | absolute value inequality | equivalent compound inequality

9. ANS:  
 $x < 24$  or  $x > 35$



PTS: 1 REF: 2.4 NAT: A.CED.1 | A.CED.2 | A.REI.3  
 TOP: End Ch Test KEY: solution of a compound inequality | conjunction | disjunction

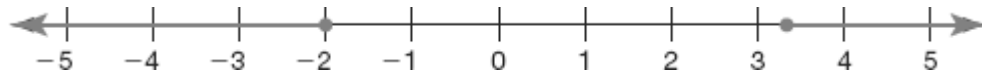
10. ANS:

$$8 \leq (3x - 2) \quad 8 \leq -(3x - 2)$$

$$10 \leq 3x \quad 8 \leq -3x + 2$$

$$6 \leq -3x$$

$$\frac{10}{3} \leq x \quad \text{or} \quad -2 \geq x$$



PTS: 1 REF: 2.5 NAT: A.CED.1 | A.CED.2 | A.CED.3 | A.REI.3 | A.REI.10  
 TOP: End Ch Test  
 KEY: opposites | absolute value | absolute value equation | absolute value inequality | equivalent compound inequality

11. ANS: A PTS: 1 REF: 2.3  
 NAT: A.CED.1 | A.CED.2 | A.CED.3 | A.REI.3 | A.REI.10 | N.Q.3  
 TOP: Standardized Test KEY: solve an inequality