Name: Key

Review

**Test 3: Unit 4 &5**

**1.** Reid's Hardware discounts all riding lawnmowers 9% to customers paying in cash. If Trey paid $1,187.64 in cash for a riding lawnmower, which of the following equations can be used to determine the original price of the lawnmower?

(Let $x$ represent the original price of the lawnmower and $y$ represent the discounted price.)

- A. $y = 1.09x$
- B. $y = 0.91x$
- C. $y = x - 9x$
- D. $y = 1.9x$

Total = Cost − Discount

$y = x - 9\%x$

$x - 0.09x$

$y = 0.91x$

9% → 0.09

9 2nd C

**2.** The Bedrock water department has a monthly service charge of $7.80 and a volume charge of $1.15 for every 100 cubic feet of water. Which of the following equations can be used to determine the Sandstone family's monthly water bill?

(Let $x$ represent 100 cubic feet of water and $y$ represent the monthly cost.)

- A. $y = 8.95x$
- B. $y = 1.15x - 7.80$
- C. $y = 0.0115x + 7.80$
- D. $y = 1.15x + 7.80$

SP + Rate = Total

$7.80 + 1.15x = y$

**3.** Matt and Casey are wrapping gifts. They bought $x$ rolls of wrapping paper and $y$ packages of ribbon. They spent a total of $33. The equation below describes the relationship between the number of rolls of wrapping paper and the number of packages of ribbon purchased.

$$6x + 3y = 33$$

x y

The ordered pair (3, 5) is a solution of the equation. What does the solution (3, 5) represent?

- A. Matt and Casey purchased 3 rolls of wrapping paper and 5 packages of ribbon.
- B. A package of ribbon costs $2 more than a roll of wrapping paper.
- C. Matt and Casey purchased 5 rolls of wrapping paper and 3 packages of ribbon.
- D. Matt and Casey spent $3 on wrapping paper and $5 on ribbon.

**4.** Solve for $p$.

$$\frac{4p - 26}{3} = 2$$

- A. $p = 8$
- B. $p = 21$
- C. $p = -5$
- D. $p = 7$

$3 \cdot \frac{4p-26}{3} = 2 \cdot 3$

$4p - 26 = 6$

$+26 \quad +26$

$\frac{4p}{4} = \frac{32}{4}$

$p = 8$

**5.** Solve for $x$. $8(x + 4) + 6(x + 4) = 6x - 6$

- A. $x = \frac{7}{4}$
- B. $x = 8$
- C. $x = -\frac{31}{4}$
- D. $x = -\frac{31}{10}$

$8x + 32 + 6x + 24 = 6x - 6$

$14x + 56 = 6x - 6$

$-6x \quad -56$

$\frac{8x}{8} = \frac{-62}{8}$

$x = \frac{-62}{8} = \frac{-31}{4}$

**6.** Solve for $x$. $7x - 1 = 6x + 7x + 2$

- A. $x = \frac{1}{2}$
- B. $x = -\frac{1}{14}$
- C. $x = -\frac{1}{2}$
- D. $x = \frac{1}{14}$

$7x - 1 = 13x + 2$

$-7x \quad -7x$

$\frac{-3}{6} = \frac{6x}{6}$

$x = \frac{-3}{6} = -\frac{1}{2}$

2ND PRB

**7.** Solve for $x$. $33x + 1 = 21x + 72x + 7$

- A. $x = -\frac{2}{5}$
- B. $x = -\frac{1}{10}$
- C. $x = -\frac{14}{5}$
- D. $x = \frac{1}{12}$

$33x + 1 = 93x + 7$

$-7 \quad -33x$

$\frac{-6}{60} = \frac{60x}{60}$

$x = \frac{-6}{60} = -\frac{1}{10}$

**8.** Sam is solving an equation. His work is shown below:

$6x + (6x + 10) = 42$ ← regrouped & added

$(6x + 6x) + 10 = 42$

$12x + 10 = 42$

Which statement describes the procedure Harvey used in his work and which property justifies the procedure?

A. Sam regrouped the terms to multiply 6x and 6x. This procedure is justified by the commutative property.
B. Sam regrouped the terms to add 6x + 6x. This procedure is justified by the associative property.
C. Sam regrouped the terms to add 6x and 6x and 10. This procedure is justified by the commutative property.
D. Sam regrouped the terms to multiply 6x and 6x by 10. This procedure is justified by the associative property.

**9.** Solve the following compound inequality. $3x + 6 \leq -9$ OR $4x - 9 > 3$

- **A.** $-5 \leq x < 3$
- **B.** $x \leq -5$ OR $x > 3$
- **C.** $x \leq -6$ OR $x > 4$
- **D.** $x \leq -5$

$3x + 6 \leq -9$

$-6 \quad -6$

$\frac{3x}{3} \leq \frac{-15}{3}$ OR

$x \leq -5$

$4x - 9 > 3$

$+9 \quad +9$

$\frac{4x}{4} > \frac{12}{4}$

$x > 3$

**10.** Which of the following number lines shows the solution to the compound inequality given below?

$2x - 7 > 1$ OR $-3x \leq -21$

- **A.**
- **B.**
- **C.**
- **D.**


$2x - 7 > 1$

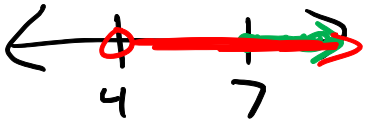
$+7 \quad +7$

$\frac{2x}{2} > \frac{8}{2}$

$x > 4$

$\frac{-3x}{-3} \leq \frac{-21}{-3}$

$x \geq 7$




**11.** Which of the following number lines shows the solution to the compound inequality given below?

$-6x + 6 < 42$ AND $3x - 4 \leq 11$

- **A.**
- **B.**
- **C.**
- **D.**


$-6x + 6 < 42$

$-6 \quad -6$

$\frac{-6x}{-6} < \frac{36}{-6}$

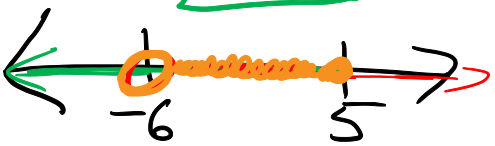
$x > -6$

$3x - 4 \leq 11$

$+4 \quad +4$

$\frac{3x}{3} \leq \frac{15}{3}$

$x \leq 5$



**12.** The junior class has been selling roses as an ongoing fundraiser. Roses sell for $3.75 each and, to date, they have raised $2,005.82. They would like to raise a total of $2,909.57 by the end of the year. If this situation is modeled by the inequality below, how many more roses, $x$, do they need to sell to raise at least $2,909.57?

$$2{,}005.82 + \$3.75x \geq \$2{,}909.57$$

$2005.82 + 3.75x \geq 2909.57$
$-2005.82 \quad -2005.82$

$\frac{3.75x}{3.75} \geq \frac{903.75}{3.75}$

$x \geq 241$

- **A.** The junior class would need to sell at most 241 roses.
- **B.** The junior class would need to sell at least 241 roses.
- **C.** The junior class would need to sell at most 776 roses.
- **D.** The junior class would need to sell at most 535 roses.

**13.** Which of the following number lines shows the solution to the compound inequality given below

$$-4x - 4 < 0 \quad \text{OR} \quad -3x \leq 27$$

$-4x - 4 < 0$
$+4 \quad +4$
$\frac{-4x}{-4} < \frac{4}{-4}$

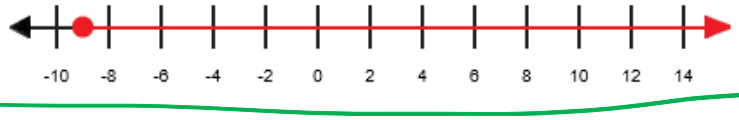
$x > -1$

$\frac{-3x}{-3} \leq \frac{27}{-3}$

$x \geq -9$

- **A.**


- **B.**





- **C.**

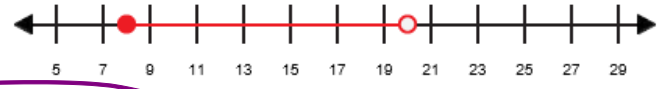

- **D.**

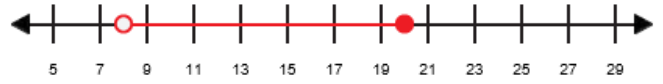
**14.** Which of the following number lines shows the solution to the compound inequality given below?

$-10 \geq -2x + 6 > -34$

A. 


B. 


C. 


D. 


$-10 \geq -2x+6 > -34$

$-6 \quad -6 \quad -6$

$-16 \geq -2x > -40$

$\div -2 \quad \div -2 \quad \div -2$

$8 \leq x < 20$


**15.** Brandon writes math problems for a publishing company. This week he has already written 21 problems. There are 2 days left in the work week. He set a goal for himself to write at least 31 problems this week. If this situation is modeled by the inequality below, what is the average number of problems, $x$, he needs to write each of the remaining work days in order to reach his goal?

$21 + 2x \geq 31$

$-21 \quad -21$

$2x \geq 10$

$\div 2 \quad \div 2$

$x \geq 5$

SP + Rate $\geq$ Total

A. Brandon needs to write an average of at least 5 problems each of the remaining work days this week.

B. Brandon needs to write an average of at most 3 problems each of the remaining work days this week.

C. Brandon needs to write an average of at most 26 problems each of the remaining work days this week.

D. Brandon needs to write an average of at most 5 problems each of the remaining work days this week.

**16.** Solve the following inequality.

$-2|5 - x| \leq -10$

$\div -2 \quad \div -2$

$|5 - x| \geq 5$

A. $x \geq 10$ or $x \leq 0$

B. $x \leq 10$ or $x \geq 0$

C. $x \leq 0$

D. $0 \leq x \leq 10$

$5 - x \geq 5$

$-5 \quad -5$

$-1x \geq 0$

$\div -1 \quad \div -1$

$x \leq 0$

$5 - x \leq -5$

$-5 \quad -5$

$-x \leq -10$

$\div -1 \quad \div -1$

$x \geq 10$

**17.** Solve for $x$. $9x - 2 = 6x + 4$

- A. $x = \frac{4}{15}$
- B. $x = \frac{4}{3}$
- C. $x = 2$
- D. $x = \frac{2}{5}$

$9x-2=6x+4$

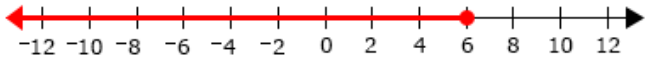
$-6x+2 \quad -6x+2$

$\frac{3x}{3}=\frac{6}{3}$

$x=2$

**18.** The solution set of an inequality is shown below.

$x \leq 6$




Which inequality has the solution set shown on the number line?

A. $\frac{x}{9} \leq \frac{2}{3}$ $\rightarrow 9 \cdot \frac{x}{9} \leq \frac{2}{3} \cdot 9$ $x \leq 6$

B. $\frac{-x}{9} \leq \frac{-2}{3}$ $-9 \cdot \frac{-1x}{9} \leq \frac{-2}{3} \cdot -9$ $x \geq 6$

C. $\frac{x}{9} \leq \frac{-2}{3}$ $\rightarrow 9 \cdot \frac{x}{9} \leq \frac{-2}{3} \cdot 9$ $x \leq -6$

D. $\frac{-x}{9} \leq \frac{2}{3}$ $-9 \cdot \frac{-1x}{9} \leq \frac{2}{3} \cdot -9$ $x \geq -6$