

Test 2 Review

$$\textcircled{1} \quad 3y + 4 = 16$$

$$3(-4) + 4 = 16$$

$$-8 \neq 16$$

Is -4 a solution?

NO

$$\textcircled{2} \quad 9t + 4 = -86$$

$$9(-10) + 4 = -86$$

$$-86 = -86$$

Is -10 a solution?

Yes

(3) Solve $z - 9 = 10$

a) 1

b) -1

c) 19

d) -19

$$z - 9 = 10$$

$$+9 \quad +9$$

$$z = 19$$

(4) Solve $9.6 = -2.7 + y$

$$+2.7 \quad +2.7$$

$$12.3 = y$$

A) 12.3

B) -12.3

C) 6.9

D) -6.9

(5) $-4m = 38$

$$\frac{-4m}{-4} = \frac{38}{-4}$$

$$m = -9.5 = -19/2$$

A

$$(6) \quad -24 = -0.4x$$

$$\frac{-24}{-0.4} = \frac{-0.4x}{-0.4}$$

$$60 = x$$

(C)

$$(7) \quad \frac{y}{7} = -5$$

$$\frac{1}{7} \cdot y = -5$$

$$\frac{\frac{1}{7} \cdot y}{\frac{1}{7}} = \frac{-5}{\left(\frac{1}{7}\right)}$$

$$y = -35$$

(A)

$$\textcircled{8} \quad \frac{2}{3} \cdot t = -\frac{1}{5}$$

$$\frac{\frac{2}{3} \cdot t}{\frac{2}{3}} = \frac{-\frac{1}{5}}{\frac{2}{3}}$$

$$t = -\frac{3}{10}$$

\textcircled{A}

$\textcircled{A} \quad t = -\frac{3}{10}$

B) $t = -\frac{2}{15}$

C) $t = -\frac{13}{15}$

D) $t = \frac{3}{10}$

$$\textcircled{9} \quad 4 \cdot x + 11 = 3$$

$$-11 \quad -11$$

$$4x = -8$$

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

$$x = -2$$

A) 2

$\textcircled{B} \quad -2$

C) $\frac{7}{2}$

D) $\frac{1}{5}$

$$\textcircled{10} \quad 5x - 4x + 6 = 7 - 6$$

$$x + 6 = 1$$
$$\quad \quad -6 \quad \quad -6$$

$$x = -5$$

A) $-5/7$

B) -5

C) 1

D) $1/7$

$$\textcircled{11} \quad 5n - 8 = 11n + 5$$
$$-11n \quad \quad -11n$$

$$-6n - 8 = 5$$
$$\quad \quad +8 \quad \quad +8$$

$$-6n = 13$$

$$\frac{-6n}{-6} = \frac{13}{-6}$$

$$n = -13/6$$

A) $-1/2$

B) $13/16$

C) $-13/6$

D) $13/6$

12

$$\begin{array}{r} -0.5y + 1.3 = -0.2 \\ +0.2y \end{array}$$

$$\begin{array}{r} -0.3y + 1.3 = -0.2 \\ -1.3 \quad -1.3 \end{array}$$

$$-0.3y = -1.5$$

$$\frac{-0.3y}{-0.3} = \frac{-1.5}{-0.3}$$

$$y = 5$$

$$\begin{array}{r} -0.2y \\ +0.2y \end{array}$$

A) 0.5

B) 7

C) 5

D) 3

$$(13) \quad 4(2x + 18) - 44 = 112 - 2(5x - 3)$$

$$8x + 72 - 44 = 112 - 10x + 6$$

+10x

$$18x + 72 - 44 = 112 + 6$$

$$18x + 28 = 118$$
$$-28$$

$$18x = 90$$

$$\frac{18x}{18} = \frac{90}{18}$$

$$x = 5$$

A) All real numbers

B) 5

C) $\frac{13}{3}$

D) $\frac{73}{9}$

$$(14) \quad \frac{1}{2}(2n-5) + \frac{4}{3} = \frac{5n}{6} - \frac{3}{2}$$

$$1n - \frac{5}{2} + \frac{4}{3} = \frac{5n}{6} - \frac{3}{2}$$

$$-\frac{5n}{6}$$

$$-\frac{5}{6}n$$

$$\frac{1}{6}n \quad \boxed{-\frac{5}{2} + \frac{4}{3}} = -\frac{3}{2}$$

$$\frac{1}{6}n - \frac{7}{6} = -\frac{3}{2}$$

$$+ \frac{7}{6} \quad + \frac{7}{6}$$

$$\frac{1}{6}n = -\frac{1}{3}$$

$$\frac{\frac{1}{6}n}{\frac{1}{6}} = \frac{-\frac{1}{3}}{\frac{1}{6}}$$

$$n = -2$$

A) $\frac{5}{3}$

B) $-\frac{11}{6}$

C) -2

D) 13

(15) The sum of four and a number is -19 .
Find the number.

$$4 + x = -19$$

$$\begin{array}{r} -4 \\ -4 \end{array}$$

$$x = -23$$

(A)

(16) The product of $-\frac{1}{2}$ and a number is 12 .
(multiply) (x)

$$-\frac{1}{2} \cdot x = 12$$

$$\frac{-\frac{1}{2} \cdot x}{-\frac{1}{2}} = \frac{12}{-\frac{1}{2}}$$

$$x = -24$$

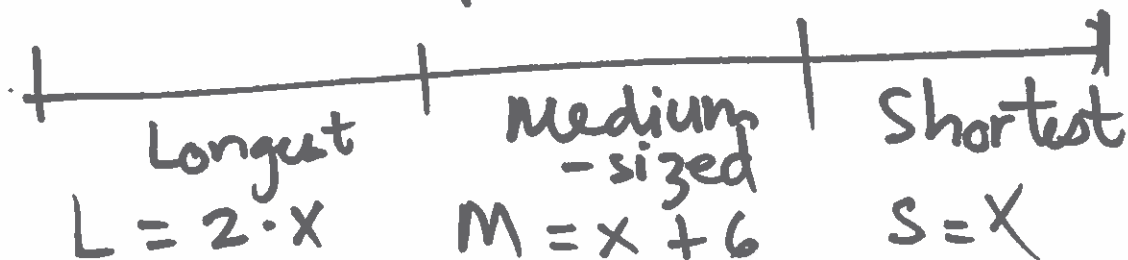
(D)

- (17) Marcus made \$24 more than three times
Joel's weekly salary.
Let x = Joel's weekly salary
Find expression for Marcus' weekly salary.

$$M = 3 \cdot \text{Joel} + 24$$

$$M = 3 \cdot x + 24$$

- (18) 58-inch pipe is cut into 3 pieces.
Longest piece is twice as long as shortest
medium-sized piece is 6 longer than shortest.



$$L + M + S = 58$$

$$2x + x + 6 + x = 58$$

$$4x + 6 = 58$$

$$-6 \quad -6$$

$$4x = 52$$

$$\frac{4x}{4} = \frac{52}{4}$$

$$x = 13$$

$$S = x = 13 \text{ in}$$

$$M = x + 6 = 13 + 6 = 19 \text{ in}$$

$$L = 2 \cdot x = 2 \cdot 13 = 26 \text{ in}$$

(19) The sum of two consecutive even integers is 118. Find the least (or smallest) of the two integers.

$$\begin{aligned}\text{Integer 1} &= x = 58 \\ \text{Integer 2} &= x + 2 = 58 + 2 = 60\end{aligned}$$

$$x + x + 2 = 118$$

$$2x + 2 = 118$$

$$\begin{array}{r} -2 \\ -2 \end{array}$$

$$2x = 116$$

$$\frac{2x}{2} = \frac{116}{2}$$

$$x = 58$$

A) 60

B) 59

C) 58

D) 56

$$\textcircled{20} \quad I = p \cdot r \cdot t ; \quad I = 157.5 \quad \text{Find } t.$$

$$157.5 = (250)(0.07) \cdot t$$

$$p = 250$$

$$r = 0.07$$

$$157.5 = 17.5t$$

$$\frac{157.5}{17.5} = \frac{17.5t}{17.5}$$

$$9 = t$$

$$\textcircled{21} \quad d = r t ;$$

$$t = 2$$

Find r .

$$d = 8$$

$$8 = r \cdot 2$$

$$8 = 2 \cdot r$$

$$\frac{8}{2} = \frac{2 \cdot r}{2}$$

$$4 = r$$

$$(22) \quad P = 2L + 2W ;$$

$$22 = 2 \cdot L + 2(2)$$

$$22 = 2 \cdot L + 4$$

$$\begin{array}{r} -4 \qquad \qquad -4 \\ 18 = 2 \cdot L \end{array}$$

$$18 = 2 \cdot L$$

$$\frac{18}{2} = \frac{2 \cdot L}{2}$$

$$9 = L$$

$$P = 22$$

$$W = 2$$

Find L

$$(23) \quad t + 5 \geq 26$$

$$\begin{array}{r} -5 \qquad \qquad -5 \\ t \geq 21 \end{array}$$

$$t \geq 21$$



$$[21, \infty)$$

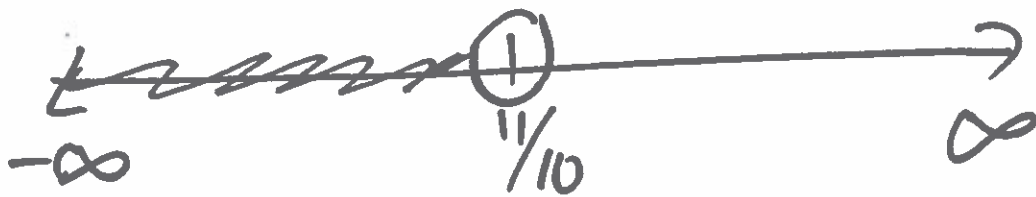
$$(24) \quad -60m + 77 > 11$$

$$\begin{array}{r} -60m + 77 > 11 \\ -77 \quad -77 \\ \hline -60m > -66 \end{array}$$

$$\frac{-60m}{-60} > \frac{-66}{-60}$$

Dividing by -60
Reverse inequality sign

$$m < 11/10$$



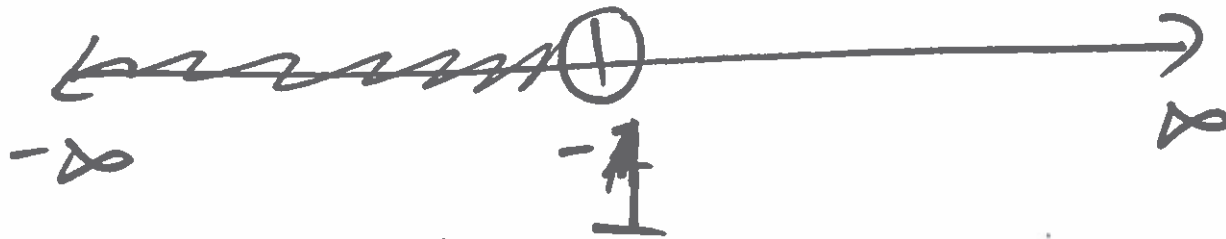
$$(-\infty, 11/10)$$

(25)

$$2 + 5z < 4z + 1$$
$$-4z \quad -4z$$

$$2 + 1z < 1$$
$$-2 \quad -2$$

$$z < -1$$



$(-\infty, -1)$

$$(26) \quad -2(8y-7) + y \geq 2y - (-12 + y)$$

$$-16y + 14 + y \geq 2y + 12 - y$$

$$-15y + 14 \geq y + 12$$

$$-1y \quad \cdot \quad -1y$$

$$-16y + 14 \geq 12$$
$$-14 \quad -14$$

$$-16y \geq -2$$

$$\frac{-16y}{-16} \geq \frac{-2}{-16}$$

$$y \leq \frac{1}{8}$$



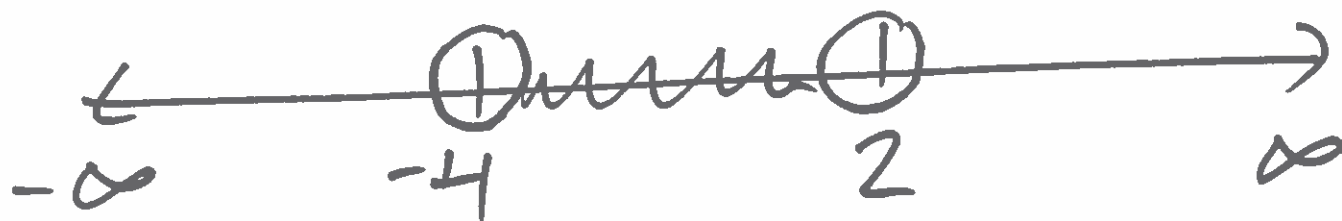
$$(-\infty, \frac{1}{8}]$$

(27)

$$-4 < y < 2$$

Compound Inequality

y is between -4 and 2 .



$$(-4, 2)$$

(28)

$$-37 \leq 5p - 17 \leq 18$$

$$+17$$

$$+17$$

$$+17$$

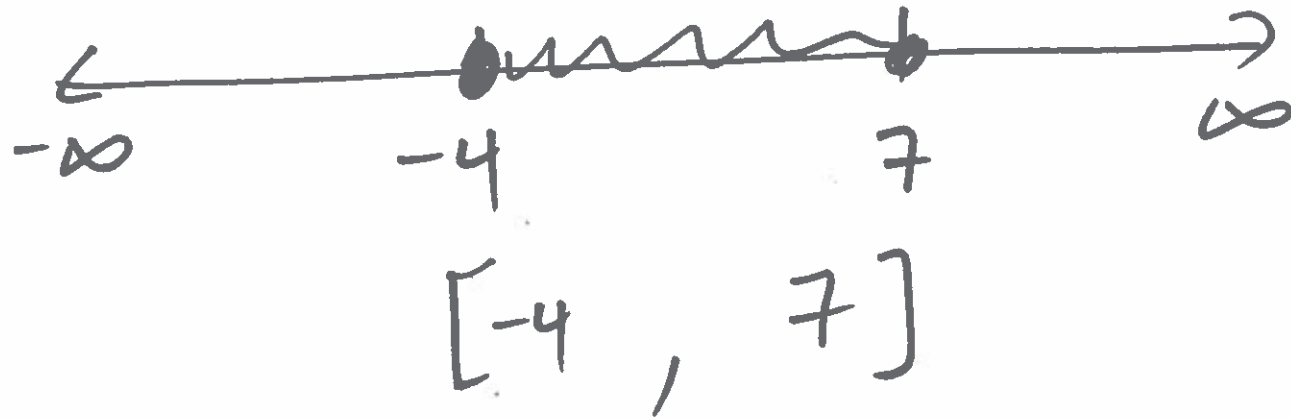
$$-20 \leq 5p \leq 35$$

$$\frac{-20}{5} \leq \frac{5p}{5} \leq \frac{35}{5}$$

Compound Inequality

$$-4 \leq p \leq 7$$

p is between -4 and 7.



(29) $\frac{(x+3)}{4} \rightarrow \frac{5}{7}$

Proportional Equation

$$(x+3) \cdot 7 = 4 \cdot 5$$

$$7x + 21 = 20$$

$$-21 \quad -21$$

$$7x = 1$$

$$x = 1/7$$

(30) ~~Current~~ ^{Discount} price for a dress is ~~\$25~~ \$15.
Discount rate was 15%.
Find original price.

$$\left(\begin{array}{c} \text{Discount} \\ \text{Rate} \end{array} \right) \cdot \left(\text{Original Price} \right) = \text{Discount}$$
$$(0.15) \cdot (\text{~~25~~ } x) = 15$$

$$0.15x = 15$$

$$\frac{0.15x}{0.15} = \frac{15}{0.15}$$

$$x = \$100$$

31) Current price of a calculator is \$50. Discount rate is 20%.
Find the original price.

Formulas:

$$\text{A) } (\text{Discount Rate})(\text{Original Price}) = \text{Discount Price}$$

$$\text{B) } (100\% - \text{Discount Rate})(\text{Original Price}) = \text{Current Price}$$

We will use Formula B:

$$(100\% - \text{Discount Rate})(\text{Original Price}) = \text{Current Price}$$

$$(100\% - 20\%)(\text{Original Price}) = \$50$$

$$80\% (x) = 50$$

$$0.8x = 50$$

$$x = \$62.5 \quad \text{original price}$$

32) Sale price for a machine is \$550. Discount rate is 10%.
Find the original price.

Formulas:

$$\text{A) } (\text{Discount Rate})(\text{Original Price}) = \text{Discount Price}$$

$$\text{B) } (100\% - \text{Discount Rate})(\text{Original Price}) = \text{Current Price}$$

We will use Formula B:

$$(100\% - \text{Discount Rate})(\text{Original Price}) = \text{Current Price}$$

$$(100\% - 10\%)(\text{Original Price}) = \$550$$

$$90\% (x) = 550$$

$$0.9x = 550$$

$$x = \$611.11 \quad \text{original price}$$