

Chapter 1 Review

Name Key

Solve the equation. Show all work.

$$1) x + 5 = 7$$

$$\begin{array}{r} -5 \\ \hline x = 2 \end{array}$$

$$4) \left[\frac{y}{2} = 15 \right] 2$$

$$y = 30$$

$$3) \left[-\frac{2}{3}w = 14 \right] 3$$

$$-2w = 42$$

$$\begin{array}{r} -2 \\ \hline w = -21 \end{array}$$

$$10) \left[\frac{z+2}{3} = 6 \right] 3$$

$$z+2 = 18$$

$$\begin{array}{r} -2 \\ \hline z = 16 \end{array}$$

$$13) \underline{7w} + \underline{6w} = 26$$

$$\begin{array}{r} 13w \\ \hline 13 \quad 13 \\ w = 2 \end{array}$$

$$16) -3(2y - 5) = -7(y - 2)$$

$$\begin{array}{l} -6y + 15 = -7y + 14 \\ +7y \quad +7y \\ y + 15 = 14 \\ -15 \quad -15 \\ y = -1 \end{array}$$

$$19) \underline{y} + 3 - \underline{y} = 9$$

$$0y + 3 = 9$$

$$3 \neq 9$$

no solution

$$2) y - 4 = 2$$

$$\begin{array}{r} +4 \\ \hline y = 6 \end{array}$$

$$5) 10 - m = -3$$

$$\begin{array}{r} -10 \\ \hline -m = -13 \\ \hline -1 \\ m = 13 \end{array}$$

$$8) \frac{7\pi x}{7\pi} = \frac{-105\pi}{7\pi}$$

$$x = \frac{-105}{7}$$

$$\begin{array}{r} x = -15 \end{array}$$

$$11) 3 = \frac{c}{5} + 2$$

$$\begin{array}{r} -2 \\ \hline 1 = \frac{c}{5} \\ 5 \\ c = 5 \end{array}$$

$$5) \left[1 = \frac{c}{5} \right] 5$$

$$5 = c$$

$$14) 24 - 8x = 4x$$

$$\begin{array}{r} +8x \\ \hline +8x \end{array}$$

$$\frac{24}{12} = \frac{12x}{12}$$

$$\begin{array}{r} 2 = x \\ \hline x = 2 \end{array}$$

$$17) \frac{4}{5}(10y - 10) = \frac{2}{7}(7y + 14)$$

$$\begin{array}{l} \frac{40}{5}y - \frac{40}{5} = \frac{14}{7}y + \frac{28}{7} \\ 8y - 8 = 2y + 4 \\ -2y \quad -2y \\ 6y - 8 = 4 \\ +8 \quad +8 \\ 6y = 12 \\ \hline y = 2 \end{array}$$

$$20) 3(5 + a) = \frac{1}{4}(28 + 12a)$$

$$\begin{array}{l} 15 + 3a = \frac{28}{4} + \frac{12}{4}a \\ 15 + 3a = 7 + 3a \\ -3a \quad -3a \end{array}$$

$$\begin{array}{r} 15 \neq 7 \\ \text{no solution} \end{array}$$

$$3) \frac{4g}{4} = \frac{36}{4}$$

$$\boxed{g = 9}$$

$$6) \frac{3}{4} + x = \frac{5}{4}$$

$$\begin{array}{r} -\frac{3}{4} \\ \hline x = \frac{1}{2} \end{array}$$

$$x = \frac{2}{4}$$

$$9) 18x - 14 = -14$$

$$\begin{array}{r} +14 \quad +14 \\ \hline 18x = 0 \end{array}$$

$$\frac{18x}{18} = \frac{0}{18}$$

$$\boxed{x = 0}$$

$$12) \underline{8x} - 3 - \underline{2x} = 21$$

$$\begin{array}{r} 6x - 3 = 21 \\ +3 \quad +3 \\ 6x = 24 \\ \hline x = 4 \end{array}$$

$$15) \underline{8k} - 14 - \underline{3k} = \underline{7k} + 4 + \underline{k}$$

$$\begin{array}{r} 5k - 14 = 8k + 4 \\ -5k \quad -5k \\ -14 = 3k + 4 \\ -4 \quad -4 \\ -18 = 3k \\ \hline -6 = k \end{array}$$

$$18) x + 3(\underline{x} + 1) = -3(\underline{x} - 8)$$

$$\begin{array}{r} x + 3x + 3 = -3x + 24 \\ +3x \quad +3x \\ 7x + 3 = -3x + 24 \\ +3x \quad +3x \\ 7x = 21 \\ \hline x = 3 \end{array}$$

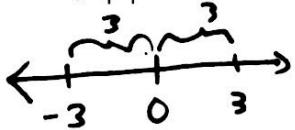
$$21) 2(\underline{3t} + 3) = 3(\underline{2t} + 2)$$

$$\begin{array}{r} 6t + 6 = 6t + 6 \\ -6t \quad -6t \\ 6 = 6 \end{array}$$

$$\begin{array}{r} \text{infinitely many} \\ \text{solutions} \end{array}$$

Write in words, graph on a number line, then solve the equation.

22) $|r| = 3$.



$r = -3 \quad r = 3$

25) $|y + 7| - 2 = -5$

$$|y+7|-2=-5 \\ +2 \quad +2$$

$$|y+7|=-3 \\ \boxed{\text{no solution}}$$

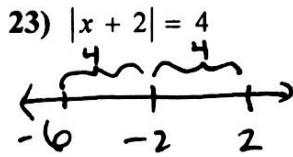
28) $\frac{-5|6-3n|}{-5} = \frac{-30}{-5}$

$$|6-3n|=6$$

$$\frac{3|2-n|}{3}=\frac{6}{3}$$

$$|2-n|=2 \quad \leftarrow \begin{array}{c} \text{2} \\ \text{2} \end{array} \rightarrow \begin{array}{c} \text{2} \\ \text{2} \end{array}$$

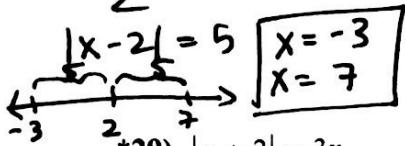
$n=0 \quad n=4$



$x = -4 \quad x = 2$

26) $|2x - 4| = 10$

$$\frac{2|x-2|}{2} = \frac{10}{2}$$

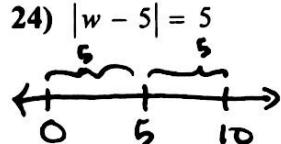
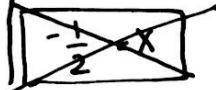


*29) $|x + 2| = 3x$

$$x+2=3x \quad x+2=-3x \\ -x \quad -x \quad -x$$

$$2=2x \quad \frac{2}{-4} = \frac{-4x}{-4}$$

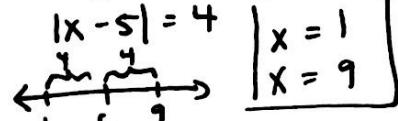
$1=x$



$w=0 \quad w=10$

27) $-3|x-5|+6=-6$

$$\frac{-3|x-5|}{-3} = \frac{-12}{-3}$$



*30) $|z-4|=|z+6|$

$$z-4=z+6 \quad z-4=-(-z-6) \\ -z \quad -z \quad z-4=-z-6$$

$$-4 \neq 6 \quad +z \quad +z$$

$$2z-4=-6 \\ +4 \quad +4 \\ 2z=-2$$

$z=-1$

Solve the literal equation for the given variable. Show all work

31) Solve for y: $y - 2x = 14$
+2x +2x

$y = 2x+14$

33) Solve for x: $-12x - 3y = 15$
+3y +3y

$$\frac{-12x}{-12} = \frac{3y+15}{-12}$$

$x = -\frac{1}{4}y - \frac{5}{4}$

*35) Solve for x: $ux + rx = w$

$$\frac{x(ux+r)}{(ux+r)} = \frac{w}{(ux+r)}$$

$x = \frac{w}{(ux+r)}$

37) Solve for m: $y = mx + b$
-b -b

$$\frac{y-b}{x} = \frac{mx}{x}$$

$\frac{y-b}{x} = m$

32) Solve for y: $4x - 2y = 10$

$$\begin{matrix} -4x & -4x \\ -2y & = -4x+10 \\ \hline -2 & -2 \end{matrix}$$

$y = 2x-5$

34) Solve for x: $y = \underline{3x} + \underline{6x}$

$$\frac{y}{9} = \frac{9x}{9}$$

$\frac{y}{9} = x$

*36) Solve for y: $2(x-y) + xy = 5x + 7$

$$\begin{matrix} -2x-2y+xy & = 5x+7 \\ -2x & -2x \end{matrix}$$

$$\begin{matrix} -2y+xy & = 3x+7 \\ y(-2+x) & = 3x+7 \end{matrix}$$

$$\frac{y(-2+x)}{(-2+x)} = \frac{3x+7}{(-2+x)}$$

38) Solve for w: $P = 2l + 2w$

-2L -2L

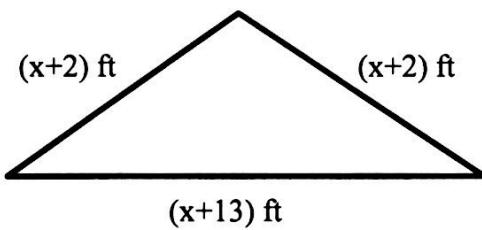
$$\frac{P-2L}{2} = \frac{2w}{2}$$

$P-2L \quad 2 = w$

Write an equation and solve to find the unknown. Show all work.

- 39) The perimeter of the triangle is 45 ft.

$$x+2 + x+2 + x+13 = 45$$



$$\begin{array}{r} 3x+17 = 45 \\ -17 \quad -17 \\ \hline 3x = 28 \end{array}$$

$$x = \frac{28}{3}$$

$$\text{OR } x = 9.\overline{3} \text{ OR } x = 9\frac{1}{3}$$

- 40) A mechanic charges \$43 per hour for labor and \$217 for parts. The total bill is \$432. How many hours did the mechanic work? $h = \# \text{ of hours}$

$$\begin{array}{r} 43h + 217 = 432 \\ -217 \quad -217 \\ \hline 43h = 215 \end{array} \rightarrow \frac{43h}{43} = \frac{215}{43}$$

$$h = 5 \text{ hours}$$

- 41) There are 158 students on a field trip. Five students traveled in cars and the rest traveled in three full buses. How many students traveled in one bus? $x = \# \text{ of students in one bus}$

$$\begin{array}{r} 3x + 5 = 158 \\ -5 \quad -5 \\ \hline 3x = 153 \end{array} \rightarrow x = 51 \text{ students}$$

- 42) The sum of 5 times a number and 6 is -29.

$$\begin{array}{r} 5x + 6 = -29 \\ -6 \quad -6 \\ \hline 5x = -35 \end{array} \rightarrow \frac{5x}{5} = \frac{-35}{5}$$

- 42) 17 less than twice a number is 21.

$$\begin{array}{r} 2x - 17 = 21 \\ +17 \quad +17 \\ \hline 2x = 38 \end{array} \rightarrow \frac{2x}{2} = \frac{38}{2} \rightarrow x = 19$$

- 43) 6 more than the quotient of a number and 4 is 3.

$$\begin{array}{r} \frac{x}{4} + 6 = 3 \\ -6 \quad -6 \\ \hline \frac{x}{4} = -3 \end{array} \rightarrow 4 \left[\frac{x}{4} = -3 \right] 4 \rightarrow x = -12$$

Simplify.

44) $4 - 6$

$$\boxed{-2}$$

47) $-38 \div (-2)$

$$\boxed{19}$$

50) $|5| - |-5|$

$$\boxed{0}$$

53) $4 + 2(7 - 2)^2 - 5$

$$4 + 2(5)^2 - 5$$

$$4 + 2(25) - 5$$

$$4 + 50 - 5$$

$$\boxed{49}$$

45) $-11 - (-23)$

$$\boxed{12}$$

48) $63 \div (-9)$

$$\boxed{-7}$$

51) $|-7| + |7|$

$$\begin{array}{r} 7 + 7 \\ \hline 14 \end{array}$$

54) $12 \div 2 \cdot 3 - 6 + 1$

$$6 \cdot 3 - 6 + 1$$

$$18 - 6 + 1$$

$$\boxed{13}$$

46) $-19 + 21$

$$\boxed{2}$$

49) $-4(5)$

$$\boxed{-20}$$

52) $\left| \frac{-15}{3} \right|$

$$|-5| = \boxed{5}$$

55) $4 - 3^3 \div 9(4 - 6)$

$$\begin{array}{r} 4 - 27 \div 9(4 - 6) \\ 4 - 3(4 - 6) \\ 4 - 3(-2) \end{array} \rightarrow \begin{array}{r} 4 + 6 \\ 10 \end{array}$$