

Answer Key

Unit 0 Review Integers

p.1

1. $-77.2 - 43.77$
c c o

$$-77.2 + (-43.77) = \boxed{-120.97}$$

$$\begin{array}{r} 77.20 \\ + 43.77 \\ \hline 120.97 \end{array}$$

2. $27.02 + (-5.6) = \boxed{21.42}$

$$\begin{array}{r} 27.02 \\ - 5.60 \\ \hline 21.42 \end{array}$$

3. $5.4 \times (-3.6) = \boxed{-19.44}$

$$\begin{array}{r} 5.4 \\ \times 3.6 \\ \hline 324 \\ + 1620 \\ \hline 19.44 \end{array}$$

4. $-2.1 \times (-6.3) = \boxed{13.23}$

$$\begin{array}{r} 2.1 \\ \times 6.3 \\ \hline 63 \\ + 1260 \\ \hline 13.23 \end{array}$$

5. $6.4 - (-11.4) = \boxed{17.8}$

$$\begin{array}{r} 6.4 \\ + 11.4 \\ \hline 17.8 \end{array}$$

$$6. \quad \frac{1}{4} - \frac{5}{7}$$

$$\begin{array}{r} \times 7 \quad \frac{1}{4} - \frac{5}{7} \\ \times 7 \quad \frac{1}{4} - \frac{5}{7} \end{array}$$

$$\frac{7}{28} - \frac{20}{28}$$

C C O

$$\frac{7}{28} + \left(-\frac{20}{28}\right) = \boxed{-\frac{13}{28}}$$

$$7. \quad -\frac{2}{3} \times -\frac{4}{9} = \boxed{\frac{8}{27}}$$

$$8. \quad \frac{3}{4} + \left(-\frac{7}{8}\right) =$$

$$\begin{array}{r} \times 2 \quad \frac{3}{4} + \left(-\frac{7}{8}\right) \\ \times 2 \quad \frac{3}{4} + \left(-\frac{7}{8}\right) \end{array}$$

$$\frac{6}{8} + \left(-\frac{7}{8}\right) = \boxed{-\frac{1}{8}}$$

$$9. \quad -\frac{2}{5} \div \frac{9}{10}$$

keep
change
flip

$$\begin{array}{c} K \quad C \quad F \\ -\frac{2}{5} \times \frac{10}{9} = \frac{-20 \div 5}{45 \div 5} = \boxed{-\frac{4}{9}} \end{array}$$

$$10. \quad -\frac{1}{6} - \left(-\frac{1}{4}\right)$$

$$\begin{array}{r} \times 2 \quad -\frac{1}{6} - \frac{\times 3}{\times 3} \left(-\frac{1}{4}\right) \\ \times 2 \quad -\frac{1}{6} - \frac{\times 3}{\times 3} \left(-\frac{1}{4}\right) \end{array}$$

$$\frac{-2}{12} - \left(-\frac{3}{12}\right)$$

O C O

$$-\frac{2}{12} + \frac{3}{12} = \boxed{\frac{1}{12}}$$

Multi-Step Equations

p. 3

$$\begin{array}{rcl} 1. & 4x - 8 & = 16 \\ & + 8 & + 8 \\ & \hline & 4x & = 24 \\ & \frac{4}{4} & \frac{4}{4} \\ & \boxed{x = 6} \end{array}$$

$$\begin{array}{l} \text{check: } 4(6) - 8 = 16 \\ 24 - 8 = 16 \\ 16 = 16 \quad \checkmark \end{array}$$

$$\begin{array}{rcl} 2. & \frac{y}{12} - 5 & = 11 \\ & + 5 & + 5 \\ & \hline & \frac{y}{12} & = 16 \\ 12 \times & \frac{y}{12} & = 16 \quad \times 12 \\ & \boxed{y = 192} \end{array}$$

$$\begin{array}{l} \text{check: } \frac{192}{12} - 5 = 11 \\ 16 - 5 = 11 \\ 11 = 11 \quad \checkmark \end{array}$$

$$\begin{array}{rcl} 3. & 3.2x + 2.6 & = -23 \\ & - 2.6 & - 2.6 \\ & \hline & 3.2x & = -25.6 \\ & \frac{3.2}{3.2} & \frac{3.2}{3.2} \\ & \boxed{x = -8} \end{array}$$

$$\begin{array}{l} \text{check: } 3.2(-8) + 2.6 = -23 \\ -25.6 + 2.6 = -23 \\ -23 = -23 \quad \checkmark \end{array}$$

$$\begin{array}{rcl} 4. & \frac{x}{4} + 10 & = 1 \\ & - 10 & - 10 \\ & \hline & \frac{x}{4} & = -9 \\ 4 \times & \frac{x}{4} & = -9 \quad \times 4 \\ & \boxed{x = -36} \end{array}$$

$$\begin{array}{l} \text{check: } \frac{-36}{4} + 10 = 1 \\ -9 + 10 = 1 \\ 1 = 1 \quad \checkmark \end{array}$$

PEMDAS

$$\begin{array}{rcl} 5. & 3(x-5) - 4 & = 17 \\ & 3x - 15 - 4 & = 17 \\ & 3x - 19 & = 17 \\ & + 19 & + 19 \\ & \hline & 3x & = 36 \\ & \frac{3}{3} & \frac{36}{3} \\ & \boxed{x = 12} \end{array}$$

$$\begin{array}{l} \text{check: } 3(12-5) - 4 = 17 \\ 3(7) - 4 = 17 \\ 21 - 4 = 17 \\ 17 = 17 \quad \checkmark \end{array}$$

DEMDAS

P. 4

$$\begin{aligned} 6. \quad & 4(x-1) = 36 \\ & 4x - 4 = 36 \\ & \quad +4 \quad +4 \end{aligned}$$

$$4x = 40$$

$$\frac{4x}{4} = \frac{40}{4}$$

$$\boxed{x = 10}$$

check

$$4(10-1) = 36$$

$$4(9) = 36$$

$$36 = 36 \checkmark$$

DEMDAS

$$\begin{aligned} 7. \quad & 2(x-1) - x = 16 \\ & 2x - 2 - x = 16 \\ & \quad x - 2 = 16 \\ & \quad +2 \quad +2 \end{aligned}$$

$$\boxed{x = 18}$$

$$\text{check: } 2(18-1) - 18 = 16$$

$$2(17) - 18 = 16$$

$$34 - 18 = 16$$

$$16 = 16 \checkmark$$

$$\begin{aligned} 8. \quad & -7(x-1) + 4 = 88 \\ & -7x + 7 + 4 = 88 \\ & -7x + 11 = 88 \end{aligned}$$

$$\quad -11 \quad -11$$

$$-7x = 77$$

$$\frac{-7x}{-7} = \frac{77}{-7}$$

$$\boxed{x = -11}$$

$$\text{check: } -7(-11-1) + 4 = 88$$

$$-7(-12) + 4 = 88$$

$$84 + 4 = 88$$

$$88 = 88 \checkmark$$

$$\begin{aligned} 9. \quad & 9x - 6 = 5x + 18 \\ & -5x \quad -5x \end{aligned}$$

$$4x - 6 = 18$$

$$\quad +6 \quad +6$$

$$4x = 24$$

$$\frac{4x}{4} = \frac{24}{4}$$

$$\boxed{x = 6}$$

$$\text{check: } 9(6) - 6 = 5(6) + 18$$

$$54 - 6 = 30 + 18$$

$$48 = 48 \checkmark$$

P. 5

$$\begin{aligned}
 10. \quad & 3(x+1) = 5-x \\
 & 3x+3 = 5-x \\
 & +x \qquad +x \\
 & 4x+3 = 5 \\
 & -3 \quad -3 \\
 & 4x = 2 \\
 & \frac{4}{4} \quad \frac{2}{4} \\
 & x = \frac{2}{4} \quad \left[\frac{1}{2}, 0.5 \right]
 \end{aligned}$$

$$\begin{aligned}
 \text{check: } & 3(0.5+1) = 5-0.5 \\
 & 3(1.5) = 4.5 \\
 & 4.5 = 4.5 \checkmark
 \end{aligned}$$

Word Problems

1. Read: Nick + savings account

Read: \$50
\$15/wk
12 wks

$$\begin{aligned}
 \text{Read: equation: } & \text{Constant} + \text{per week} = \text{total} \quad (12 \text{ wks}) \\
 & 50 + 15(x) = \text{total} \\
 & 50 + 15(12) = \text{total} \\
 & 50 + 180 = \text{total} \\
 & \boxed{\$230 = \text{total}}
 \end{aligned}$$

2. Read: Consecutive integers

Read: Sum = 112
Odd numbers
three numbers

odd
1
3
5
7

$$\begin{aligned}
 \text{Read: } & \text{number 1} + \text{number 2} + \text{number 3} = 112 \\
 & X + (x+2) + (x+4) = 112 \\
 & 3x+6 = 112 \\
 & -6 \quad -6 \\
 & 3x = 106 \\
 & \frac{3}{3} \quad \frac{106}{3}
 \end{aligned}$$

$$\begin{aligned}
 x &= 35.3, \quad x+2 = 37.3 \\
 x+4 &= 39.3
 \end{aligned}$$

3. Read: Ryan car buying
Read: \$3,000 down payment
\$7,500 total cost
36/monthly payments
— per month?

$$\begin{array}{rcl} \text{Read: Constant + monthly} & = & 7,500 \\ 3,000 + X(36) & = & 7,500 \\ 3,000 + 36X & = & 7,500 \\ - 3,000 & & - 3,000 \end{array}$$

$$\begin{array}{r} 36X = 4,500 \\ \hline 36 \quad \quad 36 \end{array}$$

$$\boxed{X = \$125}$$

4. Read: Students on field trip

Read: 304 students

7 busses

17 travel in cars

Read: buses + cars = 304

$$7(x) + 17 = 304$$

x = students
in busses

$$7x + 17 = 304$$

$$-17 \quad +17$$

$$7x = 287$$

$$\frac{7}{7} \quad \frac{7}{7}$$

$$x = 41 \text{ Students per bus}$$

5. Read: 3 friends making muffins

Read: Jill = $2 \times$ Thomas

Thomas = $\frac{3}{4} \times$ Mike

OR Mike $\frac{4}{3}$

Mike = 96 muffins

Read:

$$\text{Thomas} = \frac{3}{4} \times \frac{96}{1} = \frac{288}{4} = 72$$

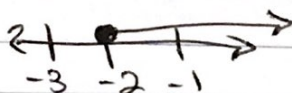
$$\begin{aligned} \text{Jill} &= 2 \times 72 \\ \text{Jill} &= 144 \end{aligned}$$

Inequalities

1. $-3x + 6 \leq 12$

$$\begin{array}{r} -3x \leq 6 \\ -3 \quad -3 \end{array}$$

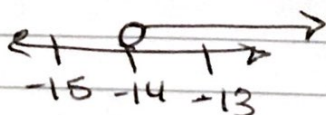
$$x \geq -2$$



2. $\frac{x}{2} + 4 > -3$

$$\begin{array}{r} \frac{x}{2} > -7 \end{array}$$

$$\begin{array}{r} 2x > -14 \\ x > -14 \end{array}$$



$$3. \frac{x}{4} - 2 \geq -4$$

$$+2 \quad +2$$

$$4 \times \frac{x}{4} \geq -2 \times 4$$

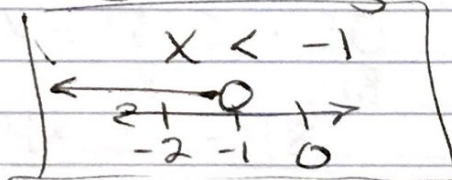
$$x \geq -8$$



$$4. 5x - 10 < -15$$

$$+10 \quad +10$$

$$\frac{5x}{5} < \frac{-5}{5}$$



$$5. 10x + 33 \leq -77$$

$$-33 \quad -33$$

$$\frac{10x}{10} \leq \frac{-110}{10}$$

$$x \leq -11$$



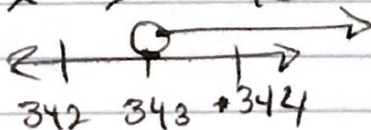
$$6. -\frac{x}{7} - 12 < -61$$

$$+12 \quad +12$$

$$-\frac{x}{7} < -49$$

$$-7 \times \quad \times -7$$

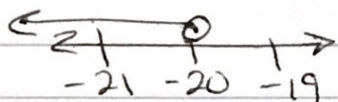
$$x > 343$$



$$7. \quad \begin{array}{ccc} -12x + 21 > 261 \\ -21 & & -21 \end{array}$$

$$\frac{-12x}{-12} > \frac{240}{-12}$$

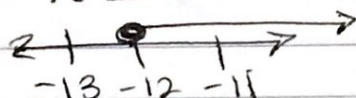
$$x < -20$$



$$8. \quad \begin{array}{ccc} 4x + 18 \geq -30 \\ -18 & & -18 \end{array}$$

$$\frac{4x}{4} \geq \frac{-48}{4}$$

$$x \geq -12$$

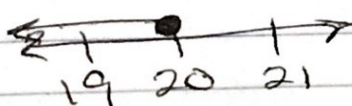


$$9. \quad \begin{array}{ccc} \frac{x}{5} + 7 \leq 11 \\ -7 & & -7 \end{array}$$

$$5 \times \frac{x}{5} \leq 4 \quad \times 5$$

*

$$x \leq 20$$



$$10. \quad \begin{array}{ccc} -\frac{x}{2} - 4 > -8 \\ +4 & & +4 \end{array}$$

$$-\frac{x}{2} > -4$$

$$\times -2 \quad \times -2$$

$$x < 8$$

