

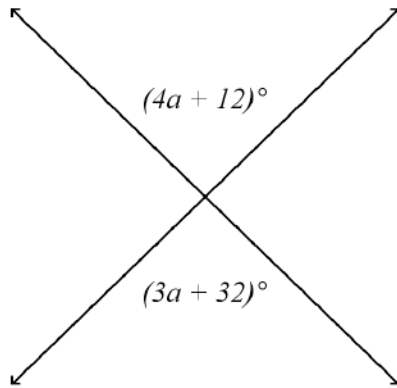
Algebra 1 Chapter 02 Review**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

Solve the equation.

- _____ 1. $11 = -d + 15$
a. 11 b. -4 c. 4 d. 6
- _____ 2. $37 - 18 + 8w = 67$
a. -6 b. 4 c. 7 d. 6
- _____ 3. $3(y + 6) = 30$
a. 5 b. 16 c. 4 d. -16
- _____ 4. $\frac{5p}{7} - 18 = -43$
a. -31 b. $-85\frac{2}{5}$ c. -50 d. -35
- _____ 5. $4.9x + 4.4 = 19.1$
a. 4 b. 3 c. 4.8 d. 7.2
- _____ 6. $3p - 1 = 5(p - 1) - 2(7 - 2p)$
a. 3 b. 0 c. -9 d. -10
- _____ 7. $5x - 5 = 3x - 9$
a. -2 b. 1 c. -1 d. -3
- _____ 8. You are driving to visit a friend in another state who lives 440 miles away. You are driving 55 miles per hour and have already driven 275 miles. Write and solve an equation to find how much longer in hours you must drive to reach your destination.
a. $55h + 275 = 440; h = 3$ c. $440h - 275 = 55; h = 0.75$
b. $55h - 275 = 440; h = 13$ d. $55h + 275h = 440; h = 1.\bar{3}$
- _____ 9. A customer went to a garden shop and bought some potting soil for \$17.50 and 4 shrubs. The total bill was \$53.50. Write and solve an equation to find the price of each shrub.
a. $4p + \$17.50 = \$53.50; p = \$9.00$ c. $4p + 17.5p = \$53.50; p = \2.49
b. $4(p + \$17.50) = \$53.50; p = \$4.00$ d. $4p + \$17.50 = \$53.50; p = \$11.25$
- _____ 10. Determine whether the statement is *sometimes*, *always* or *never* true.
If $ax + b - 4 = b$ and $a \neq 0$ then $x = \frac{4}{a}$.
a. always b. sometimes c. never
- _____ 11. Find the value of y .
 $-6y + 14 + 4y = 32$
a. 18 b. 1.8 c. -9 d. 9

- _____ 12. a. Find the value of a .
b. Find the value of the marked angles.



not drawn to scale

- a. $22; 100^\circ$ b. $19; 88^\circ$ c. $20; 92^\circ$ d. $24; 108^\circ$
- _____ 13. A copy center offers its customers two different pricing plans for black and white photocopies of 8.5 in. by 11 in. pages. Customers can either pay \$.08 per page or can pay \$7.50 for a discount card that lowers the cost to \$.05 per page. Write and solve an equation to find the number of photocopies for which the cost of each plan is the same.
- a. $.08c = .05c + 7.50; c = 250$ c. $.05c = .08c + 7.50; c = 22.5$
b. $.08c = .05c - 7.50; c = 250$ d. $7.50 = .08c + .05c; c = 58$

Solve using a graphing calculator.

- _____ 14. $7d + d - 4d - 7 = 5d$
- a. $\frac{7}{9}$ b. -1 c. -2 d. -7
- _____ 15. A car is driving at a speed of 60 mi/h. What is the speed of the car in feet per minute?
- a. 5,280 ft/min c. 316,800 ft/min
b. 3,600 ft/min d. 2,580 ft/min

Solve the proportion.

- _____ 16. $\frac{x-8}{5} = \frac{2}{4}$
- a. $\frac{9}{2}$ b. $\frac{5}{2}$ c. $\frac{21}{2}$ d. 18
- _____ 17. $\frac{13-b}{6} = \frac{2-0.5b}{4}$
- a. 32 b. 40 c. 64 d. 72

- _____ 18. School guidelines require that there must be at least 2 chaperones for every 25 students going on a school trip. How many chaperones must there be for 80 students?
- a. 6 chaperones c. 3 chaperones
b. 40 chaperones d. 7 chaperones
- _____ 19. The sum of four consecutive odd integers is -72 . Write an equation to model this situation, and find the values of the four integers.
- a. $n + (n - 2) + (n - 4) + (n - 6) = -72$;
 $n = -21$; $n - 2 = -23$; $n - 4 = -25$; $n - 6 = -27$
- b. $n + n + 2 + n + 4 + n + 6 = -72$;
 $n = -21$; $n + 2 = -23$; $n + 4 = -25$; $n + 6 = -27$
- c. $n - (n + 2) - (n + 4) - (n + 6) = -72$;
 $n = -20$; $n + 2 = -18$; $n + 4 = -16$; $n + 6 = -14$
- d. $n + n + 2 + n + 4 + n + 6 = -72$;
 $n = -21$; $n + 2 = -19$; $n + 4 = -17$; $n + 6 = -15$
- _____ 20. At 9:00 on Saturday morning, two bicyclists heading in opposite directions pass each other on a bicycle path. The bicyclist heading north is riding 6 km/hour faster than the bicyclist heading south. At 10:15, they are 42.5 km apart. Find the two bicyclists' rates.
- a. northbound bicyclist = 20 km/h; southbound bicyclist = 14 km/h
b. northbound bicyclist = 23 km/h; southbound bicyclist = 17 km/h
c. northbound bicyclist = 18 km/h; southbound bicyclist = 11 km/h
d. northbound bicyclist = 20 km/h; southbound bicyclist = 13 km/h
- _____ 21. A candy store sells yogurt-covered raisins for \$3.50 per pound and chocolate-covered pretzels for \$3.00 per pound. How many pounds of each should you buy to make a 15-pound mixture that costs \$3.20?
- a. 6 lb of raisins and 9 lb of pretzels c. 7.5 lb of raisins and 7.5 lb of pretzels
b. 9 lb of raisins and 6 lb of pretzels d. 7.5 lb of raisins and 6 lb of pretzels

Short Answer

22. A class writes the equation $n + n + 1 + n + 2 = 87$ to solve the following problem.

The sum of 3 consecutive odd integers is 87. Find the three integers.

What error did they make?

Essay

23. Solve the equation. Justify each step.
 $-10x + 5 = -15$
24. Determine whether the following statement is *sometimes*, *always*, or *never* true. Show your work.
- Every 2-digit number ending in 5 can be written as the sum of three consecutive integers.
(Hint: Try 15 and 25.)
25. The length of a rectangle is 8 cm more than 3 times its width. The perimeter of the rectangle is 64 cm.
- What are the dimensions of the rectangle? Show your work.
 - What is the area of the rectangle? Show your work.

Algebra 1 Chapter 02 Review

Answer Section

MULTIPLE CHOICE

1. ANS: C PTS: 1 DIF: L2 REF: 2-1 Solving Two-Step Equations
OBJ: 2-1.1 Solving Two-Step Equations STA: CA A1 5.0 | CA A1 25.0
TOP: 2-1 Example 1
KEY: Addition and Subtraction Properties of Equality | Multiplication and Division Properties of Equality | solving equations | two-step equation
2. ANS: D PTS: 1 DIF: L2 REF: 2-2 Solving Multi-Step Equations
OBJ: 2-2.1 Using the Distributive Property to Combine Like Terms
STA: CA A1 2.0 | CA A1 4.0 | CA A1 5.0 TOP: 2-2 Example 1
KEY: Addition and Subtraction Properties of Equality | Multiplication and Division Properties of Equality | solving equations | multi-step equation
3. ANS: C PTS: 1 DIF: L2 REF: 2-2 Solving Multi-Step Equations
OBJ: 2-2.2 Using the Distributive Property to Solve Equations
STA: CA A1 2.0 | CA A1 4.0 | CA A1 5.0 TOP: 2-2 Example 4
KEY: Addition and Subtraction Properties of Equality | Multiplication and Division Properties of Equality | solving equations | multi-step equation | Distributive Property
4. ANS: D PTS: 1 DIF: L2 REF: 2-2 Solving Multi-Step Equations
OBJ: 2-2.2 Using the Distributive Property to Solve Equations
STA: CA A1 2.0 | CA A1 4.0 | CA A1 5.0 TOP: 2-2 Example 4
KEY: Addition and Subtraction Properties of Equality | Multiplication and Division Properties of Equality | solving equations | multi-step equation | Distributive Property | fractions
5. ANS: B PTS: 1 DIF: L2 REF: 2-2 Solving Multi-Step Equations
OBJ: 2-2.2 Using the Distributive Property to Solve Equations
STA: CA A1 2.0 | CA A1 4.0 | CA A1 5.0 TOP: 2-2 Example 5
KEY: Addition and Subtraction Properties of Equality | Multiplication and Division Properties of Equality | solving equations | multi-step equation | Distributive Property | decimals
6. ANS: A PTS: 1 DIF: L3
REF: 2-3 Equations With Variables on Both Sides
OBJ: 2-3.1 Solving Equations With Variables on Both Sides
STA: CA A1 4.0 | CA A1 5.0 | CA A1 25.3 TOP: 2-3 Example 1
KEY: Addition and Subtraction Properties of Equality | Multiplication and Division Properties of Equality | solving equations | multi-step equation | Distributive Property
7. ANS: A PTS: 1 DIF: L2
REF: 2-3 Equations With Variables on Both Sides
OBJ: 2-3.1 Solving Equations With Variables on Both Sides
STA: CA A1 4.0 | CA A1 5.0 | CA A1 25.3 TOP: 2-3 Example 1
KEY: Addition and Subtraction Properties of Equality | Multiplication and Division Properties of Equality | solving equations | multi-step equation | equations with variables on both sides
8. ANS: A PTS: 1 DIF: L2 REF: 2-1 Solving Two-Step Equations
OBJ: 2-1.1 Solving Two-Step Equations STA: CA A1 5.0 | CA A1 25.0
TOP: 2-1 Example 2
KEY: Addition and Subtraction Properties of Equality | Multiplication and Division Properties of Equality | two-step equation | equivalent equations | inverse operations | solution of the equation | solving equations | problem solving | word problem

9. ANS: A PTS: 1 DIF: L2 REF: 2-1 Solving Two-Step Equations
 OBJ: 2-1.1 Solving Two-Step Equations STA: CA A1 5.0 | CA A1 25.0
 TOP: 2-1 Example 2
 KEY: Addition and Subtraction Properties of Equality | Multiplication and Division Properties of Equality | two-step equation | equivalent equations | inverse operations | solution of the equation | solving equations | problem solving | word problem
10. ANS: A PTS: 1 DIF: L3 REF: 2-1 Solving Two-Step Equations
 OBJ: 2-1.2 Using Deductive Reasoning STA: CA A1 5.0 | CA A1 25.0
 KEY: deductive reasoning | solving equations | reasoning | always sometimes never
11. ANS: C PTS: 1 DIF: L2 REF: 2-2 Solving Multi-Step Equations
 OBJ: 2-2.1 Using the Distributive Property to Combine Like Terms
 STA: CA A1 2.0 | CA A1 4.0 | CA A1 5.0 TOP: 2-2 Example 1
 KEY: Addition and Subtraction Properties of Equality | Multiplication and Division Properties of Equality | solving equations | multi-step equation
12. ANS: C PTS: 1 DIF: L3
 REF: 2-3 Equations With Variables on Both Sides
 OBJ: 2-3.1 Solving Equations With Variables on Both Sides
 STA: CA A1 4.0 | CA A1 5.0 | CA A1 25.3 TOP: 2-3 Example 1
 KEY: Addition and Subtraction Properties of Equality | Multiplication and Division Properties of Equality | equations with variables on both sides | equivalent equations | inverse operations | multi-step equation | multi-part question
13. ANS: A PTS: 1 DIF: L3
 REF: 2-3 Equations With Variables on Both Sides
 OBJ: 2-3.1 Solving Equations With Variables on Both Sides
 STA: CA A1 4.0 | CA A1 5.0 | CA A1 25.3 TOP: 2-3 Example 2
 KEY: Addition and Subtraction Properties of Equality | Multiplication and Division Properties of Equality | equations with variables on both sides | equivalent equations | inverse operations | multi-step equation | problem solving | word problem
14. ANS: D PTS: 1 DIF: L2
 REF: 2-3 Equations With Variables on Both Sides
 OBJ: 2-3.1 Solving Equations With Variables on Both Sides
 STA: CA A1 4.0 | CA A1 5.0 | CA A1 25.3 TOP: 2-3 Example 1
 KEY: Addition and Subtraction Properties of Equality | Multiplication and Division Properties of Equality | solving equations | multi-step equation | equations with variables on both sides
15. ANS: A PTS: 1 DIF: L3 REF: 2-4 Ratio and Proportion
 OBJ: 2-4.1 Ratios and Rates STA: CA A1 5.0 | CA A1 15.0
 KEY: conversion factor | unit rate | word problem | problem solving
16. ANS: C PTS: 1 DIF: L2 REF: 2-4 Ratio and Proportion
 OBJ: 2-4.2 Solving Proportions STA: CA A1 5.0 | CA A1 15.0
 TOP: 2-4 Example 5 KEY: proportion
17. ANS: B PTS: 1 DIF: L2 REF: 2-4 Ratio and Proportion
 OBJ: 2-4.2 Solving Proportions STA: CA A1 5.0 | CA A1 15.0
 TOP: 2-4 Example 6 KEY: proportion
18. ANS: D PTS: 1 DIF: L3 REF: 2-4 Ratio and Proportion
 OBJ: 2-4.2 Solving Proportions STA: CA A1 5.0 | CA A1 15.0
 KEY: ratio | proportion | word problem | problem solving

19. ANS: D PTS: 1 DIF: L3
 REF: 2-5 Equations and Problem Solving OBJ: 2-5.1 Defining Variables
 STA: CA A1 4.0 | CA A1 5.0 TOP: 2-5 Example 2
 KEY: Addition and Subtraction Properties of Equality | Multiplication and Division Properties of Equality | equivalent equations | inverse operations | multi-step equation | problem solving | word problem | consecutive integers
20. ANS: A PTS: 1 DIF: L3
 REF: 2-5 Equations and Problem Solving
 OBJ: 2-5.2 Distance-Rate-Time Problems STA: CA A1 4.0 | CA A1 5.0
 TOP: 2-5 Example 5
 KEY: Addition and Subtraction Properties of Equality | Multiplication and Division Properties of Equality | equivalent equations | inverse operations | multi-step equation | problem solving | word problem | Distributive Property | distance-rate-time problem | uniform motion
21. ANS: A PTS: 1 DIF: L2 REF: 2-6 Mixture Problems
 OBJ: 2-6.1 Solving Mixture Problems STA: CA A1 4.0 | CA A1 15.0
 TOP: 2-6 Example 1

SHORT ANSWER

22. ANS:
 The difference between consecutive odd integers is 2. The equation should be $n + n + 2 + n + 4 = 87$
- PTS: 1 DIF: L3 REF: 2-5 Equations and Problem Solving
 OBJ: 2-5.1 Defining Variables STA: CA A1 4.0 | CA A1 5.0
 KEY: reasoning | consecutive integers | error analysis

ESSAY

23. ANS:

[4]	$-10x + 5 = -15$	
	$-10x + 5 - 5 = -15 - 5$	Subtraction Property of Equality
	$-10x = -20$	Subtract.
	$\frac{-10x}{-10} = \frac{-20}{-10}$	Division Property of Equality
	$x = 2$	Divide.

[3] one computational error or missing reason

[2] one computational error and one missing reason OR two of either kind

[1] more than two errors

PTS: 1 DIF: L3 REF: 2-1 Solving Two-Step Equations

OBJ: 2-1.2 Using Deductive Reasoning STA: CA A1 5.0 | CA A1 25.0

TOP: 2-1 Example 4

KEY: deductive reasoning | extended response | rubric-based question | solving equations

24. ANS:

[4]

$$n + n + 1 + n + 2 = 15$$

$$3n + 3 = 15$$

$$3n = 12$$

$$\frac{3n}{3} = \frac{12}{3}$$

$$n = 4$$

$n = 4$, $n + 1 = 5$, and $n + 2 = 6$; 15 can be written as the sum of three integers.

$$n + n + 1 + n + 2 = 25$$

$$3n + 3 = 25$$

$$3n = 22$$

$$\frac{3n}{3} = \frac{22}{3}$$

$$n = 7\frac{1}{3}$$

$n = 7\frac{1}{3}$; n is not an integer, so 25 cannot be written as the sum of three integers.

Sometimes.

[3] correct work no answer shown

[2] one or more computational errors

[1] incorrect conclusion

PTS: 1

DIF: L4

REF: 2-5 Equations and Problem Solving

OBJ: 2-5.1 Defining Variables

STA: CA A1 4.0 | CA A1 5.0

KEY: consecutive integers | extended response | rubric-based question | reasoning | problem solving |
always sometimes never

25. ANS:

[4] **a.** Let w = the width
 Then $3w + 8$ = length
 $P = 2l + 2w$
 $64 = 2(3w + 8) + 2w$
 $64 = 6w + 16 + 2w$
 $64 = 8w + 16$
 $64 - 16 = 8w + 16 - 16$
 $48 = 8w$
 $\frac{48}{8} = \frac{8w}{8}$
 $w = 6$
 $l = 3(6) + 8 = 18 + 8 = 26$
 The dimensions are 26 cm by 6 cm.

b. Area = lw
 $A = 26(6) = 156 \text{ cm}^2$

[3] One computational error or missing units for second part

[2] incorrect formula(s) but correct computation

[1] incorrect formula and one computational error OR two or more computational errors

PTS: 1 DIF: L3 REF: 2-5 Equations and Problem Solving

OBJ: 2-5.1 Defining Variables STA: CA A1 4.0 | CA A1 5.0

KEY: problem solving | word problem | rubric-based question | extended response