

Name \_\_\_\_\_

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

**Decide whether the given number is a solution to the equation preceding it.**

1)  $\sqrt{7x+5} = 8; \frac{59}{7}$

1) \_\_\_\_\_

**Determine whether the given equation is linear.**

2)  $y = 2x^2 + 5$

2) \_\_\_\_\_

**Solve.**

3)  $8r + 9 = 33$

3) \_\_\_\_\_

**Solve the equation for the indicated variable.**

4)  $A = P(1 + nr); r$

4) \_\_\_\_\_

**Translate the sentence to an equation and then solve.**

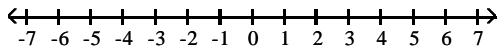
5) m decreased by two is equal to eleven.

5) \_\_\_\_\_

**Solve and graph. Write the solution set in set-builder and interval notation.**

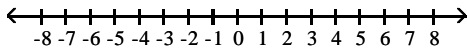
6)  $-6 \leq x \leq -2$

6) \_\_\_\_\_



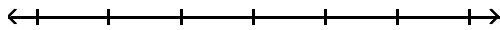
7)  $x > 6$

7) \_\_\_\_\_



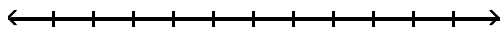
8)  $-2 > \frac{a}{-5}$

8) \_\_\_\_\_



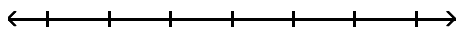
9)  $-2x < \frac{3}{7}$

9) \_\_\_\_\_



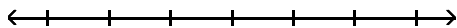
10)  $11y - 3 > 10y - 2$

10) \_\_\_\_\_



11)  $8x - 4 \leq 7x + 5$

11) \_\_\_\_\_



**Translate the sentence to an inequality.**

12) A number is less than or equal to -1.

12) \_\_\_\_\_

13) Four times a number less than twenty-six must be more than thirty.

13) \_\_\_\_\_

**Solve the problem.**

14) The equation  $y = 0.004x - 0.50$  can be used to determine the approximate profit,  $y$  in dollars, of producing  $x$  items. How many items must be produced so the profit will be at least \$2414?

14) \_\_\_\_\_

15) In order for a chemical reaction to take place, the Fahrenheit temperature of the reagents must be at least 113.47°F. Find the Celsius temperatures at which the reaction may occur.

15) \_\_\_\_\_

$(F = \frac{9}{5}C + 32)$

**Translate the sentence to an equation and then solve.**

16) 2 times the number  $w$  equals 8 less than 3 times the number.

16) \_\_\_\_\_

17) If 6 times a number is added to -4, the result is equal to 10 times the number.

17) \_\_\_\_\_

18) Twice the difference of eight and  $n$  is the same as four subtracted from negative one times  $n$ .

18) \_\_\_\_\_

**Translate the equation to a word sentence.**

19)  $4(x - 7) = -11(x + 4)$

19) \_\_\_\_\_

20)  $4(x + 6) = -12x$

20) \_\_\_\_\_

**Explain the mistake in the translation.**

21) Four divided into a number is negative thirty.

21) \_\_\_\_\_

Translation:  $4 \div n = -30$

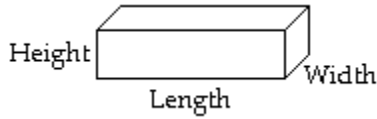
22) Nine times the sum of a number and one is equal to the number minus the difference of the number and twenty.

22) \_\_\_\_\_

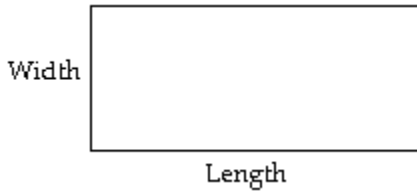
Translation:  $9(n + 1) = n - (20 - n)$

Translate to a formula, then use the formula to solve the problem. Round the answer to the nearest whole number if necessary.

- 23) The surface area of a box is equal to twice the sum of its length times its width, its length times its height, and its width times its height. Find the surface area of a box with a length of 15.2 cm, a width of 18.9 cm, and a height of 22.6 cm. 23) \_\_\_\_\_



- 24) The perimeter of a rectangle is equal to twice the sum of its length and width. Find the perimeter with a length 30 ft. and a width 13 ft. 24) \_\_\_\_\_



Solve the equation for the indicated variable.

25)  $F = \frac{9}{5}C + 32$ ; C 25) \_\_\_\_\_

26)  $x = \frac{w + y + z}{5}$ ; y 26) \_\_\_\_\_

27)  $-7k + ar = r - 8y$ ; r 27) \_\_\_\_\_

Find the mistake.

28)  $\frac{4a - 1}{7} = ws$ ; isolate a 28) \_\_\_\_\_

line 1  $\frac{4a - 1}{7} = ws$

line 2  $\frac{7}{1} \cdot \frac{4a - 1}{7} = ws \cdot 7$

line 3  $4a - 7 = 7ws$

line 4  $4a - 7 = 7ws$

line 5  $\frac{+7}{4a} = \frac{+7}{7ws + 7}$

line 6  $4a = 7ws + 7$

line 7  $\frac{4a}{4} = \frac{7ws + 7}{4}$

line 8  $a = \frac{7ws + 7}{4}$

**Solve.**

29)  $-5x = -20$

29) \_\_\_\_\_

30)  $-4q + 1.4 = -13.1 - 1.1q$

30) \_\_\_\_\_

31)  $5(6x - 1) = 20$

31) \_\_\_\_\_

**Find the mistake.**

32) line 1       $5x - 3 = 12x - 8$   
line 2       $\underline{-5x} \quad = \underline{-5x}$   
line 3       $3 = 7x - 8$

32) \_\_\_\_\_

line 4       $3 = 7x - 8$   
line 5       $\underline{+8} = \underline{+8}$   
line 6       $11 = 7x$

line 7       $\frac{11}{7} = \frac{7x}{7}$

line 8       $\frac{11}{7} = x$

**Solve the problem.**

33) The formula  $C = 22d + 20$  describes the total cost of renting a truck, where C is the total cost and d is the number of days the truck is rented. How many days can the truck be rented for \$130?

33) \_\_\_\_\_

34) The surface area of a cardboard box is  $4288 \text{ in.}^2$ . If the length is 33 in. and the width is 20 in., find the height. (Use  $SA = 2lw + 2lh + 2wh$ )

34) \_\_\_\_\_

**Determine whether the given equation is linear.**

35)  $y = 9x + 2$

35) \_\_\_\_\_

**Solve.**

36)  $a - 3 = -7$

36) \_\_\_\_\_

37)  $\frac{1}{5} + x = 7$

37) \_\_\_\_\_

38)  $-9b + 8 + 7b = -3b + 13$

38) \_\_\_\_\_

39)  $6x - 5x = 18$

39) \_\_\_\_\_

40)  $2(y + 2) = 3(y - 6)$

40) \_\_\_\_\_

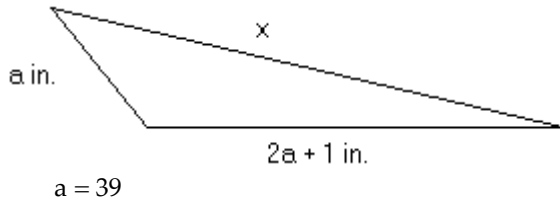
41)  $8(k + 2) - (7k - 4) = 2$

41) \_\_\_\_\_

**Translate into an equation, then solve.**

- 42) The perimeter of the triangle is 203 inches. Find the missing length.

42) \_\_\_\_\_



- 43) A weatherman reports that since 6:00 am this morning the temperature has dropped by  $19^\circ$  F to the current temperature of  $-5^\circ$  F. What was the temperature at 6:00 am ?

43) \_\_\_\_\_

**Decide whether the given number is a solution to the equation preceding it.**

- 44)  $p + 11 = 12$ ; 1

44) \_\_\_\_\_

**Determine whether the equation is an identity. (Y/N)**

- 45)  $-6g - 40 = -2(3g + 20)$

45) \_\_\_\_\_

- 46)  $12m + 8 = 2(3m + 7)$

46) \_\_\_\_\_

**Solve the problem.**

- 47) A sphere has a 10 m diameter. What is its volume? Use 3.14 for  $\pi$ . Round the answer to the nearest tenth if necessary.

47) \_\_\_\_\_

- 48) How much will it cost to carpet a 19 ft by 24 ft room if carpeting costs \$14.50 per square yard? Round the answer to the nearest cent.

48) \_\_\_\_\_

**Use the formulas relating distance, rate, and time.**

- 49) A flight departs at 7:30 A.M. EST and arrives at its destination at 9:00 A.M. PST. If the plane flies at an average rate of  $370\frac{1}{3}$  mph, what distance does it travel? Round to the nearest whole number if necessary.

49) \_\_\_\_\_

- 50) A family began a trip of 375 miles at 8 A.M. They arrived at their final destination at 4:30 P.M. If they took three 20-minute breaks and took a half hour for lunch, what was their average rate? Round to the nearest tenth if necessary.

50) \_\_\_\_\_

**Use the formula relating amperes, ohms, and voltage to solve the problem.**

$V = ir$

- 51) A technician measures the current in a circuit to be 6.3 amperes and the resistance is 8 ohms. Find the voltage.

51) \_\_\_\_\_

- 52) A technician measures the current in a circuit to be -6.1 amperes and the resistance is 7 ohms. Find the voltage.

52) \_\_\_\_\_

Use the formulas below to answer the question. Round your answer to the nearest tenth if necessary.

$$C = \frac{5}{9}(F - 32) \text{ or } C = \frac{F - 32}{1.8}$$

$$F = \frac{9}{5}C + 32 \text{ or } F = 1.8C + 32.$$

53) A chemical must be stored at 48°C. What is this temperature in degrees Fahrenheit? 53) \_\_\_\_\_

54) When the temperature is below 12°F the first grade students are not allowed to play outside. What is this temperature in degrees Celsius? 54) \_\_\_\_\_

# Answer Key

## Testname: CARSON GILLESPIE JORDAN PRACTICE PROBLEMS CHAPTER 2

1) Yes

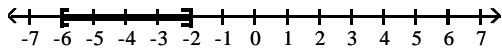
2) Not Linear

3) 3

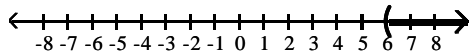
$$4) r = \frac{A - P}{Pn}$$

5)  $m - 2 = 11$ ; 13

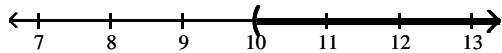
6)  $\{x | -6 \leq x \leq -2\}$ ;  $[-6, -2]$



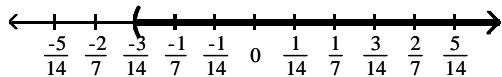
7)  $\{x | x > 6\}$ ;  $(6, \infty)$



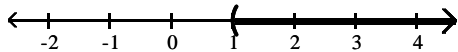
8)  $\{a | a > 10\}$ ;  $(10, \infty)$



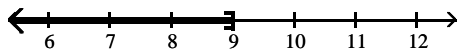
$$9) \left\{x \mid x > -\frac{3}{14}\right\}; \left(-\frac{3}{14}, \infty\right)$$



10)  $\{y | y > 1\}$ ;  $(1, \infty)$



11)  $\{x | x \leq 9\}$ ;  $(-\infty, 9]$



12)  $x \leq -1$

13)  $26 - 4x > 30$

14)  $x \geq 603,625$

15)  $C \geq 45.26^\circ$

16)  $2w = 3w - 8$ ; 8

17)  $6x + (-4) = 10x$ ; -1

18)  $2(8 - n) = -n - 4$ ; 20

19) Four times the difference of a number and seven is equal to the product of negative eleven and the sum of a number and four.

20) Four times the sum of a number and six is equal to the product of negative twelve and the number.

21) Mistake: Division translated in reverse order.

$$\text{Correct: } n \div 4 = -30$$

22) Mistake: "difference" was translated in reverse order.

$$\text{Correct: } 9(n + 1) = n - (n - 20)$$

23)  $2116 \text{ cm}^2$

24) 86 ft

$$25) C = \frac{5}{9}(F - 32)$$

$$26) y = 5x - w - z$$

## Answer Key

### Testname: CARSON GILLESPIE JORDAN PRACTICE PROBLEMS CHAPTER 2

27)  $r = \frac{7k - 8y}{a - 1}$  or  $r = \frac{-7k + 8y}{1 - a}$

28) In line 3/4; "4a - 7" should be replaced with "4a - 1" on the left side of the equation.

29) 4

30) 5

31)  $\frac{5}{6}$

32) In line 3/4; "3" on the left side of the equation should be "-3".

33) 5 days

34) 28 in.

35) Linear

36) -4

37)  $\frac{34}{5}$

38) 5

39) 18

40) 22

41) - 18

42)  $39 + 79 + x = 203$ ; 85 inches

43)  $x - 19 = -5$ ; The temperature at 6:00am was 14° F.

44) Yes

45) Yes

46) No

47) 523.3 m<sup>3</sup>

48) \$734.67

49) 1,667 miles

50) 53.6 mph

51) 50.4 V

52) -42.7 V

53) 118.4°F

54) -11.1°C