

Chapter 2 Review

Name: Answer Key

Solve each equation. Show your work!!

$$1. \quad x - 20 = -30$$

$$\quad +20 \quad +20$$

$$\boxed{x = -10}$$

$$2. \quad \frac{2}{3}w = 24 \cdot \frac{3}{2}$$

$$\boxed{w = 36}$$

$$3. \quad 17 = 12 - 2d$$

$$\quad -12 \quad -12$$

$$\quad 5 = -2d$$

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

$$\boxed{d = 2.5 \text{ or } -5/2}$$

$$4. \quad 2x - 3 - 4x = 37$$

$$\quad -2x - 3 = 37$$

$$\quad \quad +3 \quad +3$$

$$\quad -2x = 40$$

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

$$\boxed{x = -20}$$

$$5. \quad 12n + 4 = -10n - 48$$

$$\quad +10n \quad +10n$$

$$\quad 22n + 4 = -48$$

$$\quad \quad -4 \quad -4$$

$$\quad 22n = -52$$

$$\quad \quad \quad \frac{22n}{22} = \frac{-52}{22}$$

$$\boxed{n = -2\frac{4}{11} \text{ or } \frac{-26}{11}}$$

$$6. \quad -26 = 3(2q - 1) - 5q$$

$$\quad -26 = 6q - 3 - 5q$$

$$\quad -26 = q - 3$$

$$\quad \quad +3 \quad +3$$

$$\quad -23 = q$$

$$\boxed{q = -23}$$

$$7. \quad -10 = \frac{1}{3}(12f - 24)$$

$$\quad -10 = 4f - 8$$

$$\quad \quad +8 \quad +8$$

$$\quad -2 = 4f$$

$$\quad \quad \quad \frac{-2}{4} \quad \frac{4f}{4}$$

$$\boxed{f = -\frac{1}{2} \text{ or } -0.5}$$

$$8. \quad \frac{k}{5} + 10 = 3$$

$$\quad \quad -10 \quad -10$$

$$\quad \frac{k}{5} = -7.5$$

$$\boxed{k = -37.5}$$

$$9. \quad \left(\frac{x}{8} - \frac{3}{4} = \frac{1}{2}\right) \cdot 8$$

$$\quad x - 6 = 4$$

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

$$\boxed{x = 10}$$

$$10. \quad -2g + 5 = 12 - g$$

$$\quad +2g \quad +2g$$

$$\quad 5 = 12 + 1g$$

$$\quad \quad -12 \quad -12$$

$$\quad -7 = g$$

$$\boxed{g = -7}$$

$$11. \quad 2x + 2 = 2(x + 1)$$

$$\quad 2x + 2 = 2x + 2$$

$$\boxed{\text{all real \#s or many solutions}}$$

$$12. \quad 2(4a + 8) = 4(4 + 2a)$$

$$\quad 8a + 16 = 16 + 8a$$

$$\boxed{\text{all real \#s or many solutions}}$$

Write and solve an equation that represents each situation.

13. Bob earns \$800 per month for painting houses. He also receives \$300 for each house he paints. If he wants to earn \$2000 each month, how many houses does he need to paint? $h = \text{houses painted}$

$$\rightarrow 800 + 300h = 2000 \leftarrow$$

$$\quad -800 \quad -800$$

$$\quad \quad \frac{300h}{300} = \frac{1200}{300}$$

$$\boxed{h = 4 \text{ houses}}$$

14. Billy is looking to join a gym. Gym A charges \$3 per workout. Gym B charges a \$15 enrollment fee & \$1 per workout. What is the minimum number of workouts that Billy needs in order for Gym B to be the better deal? $w = \text{workouts}$

$$\rightarrow 3w = 15 + 1w \leftarrow$$

$$\quad -1w \quad -1w$$

$$\quad 2w = 15$$

$$\quad \quad \quad \frac{2w}{2} = \frac{15}{2}$$

$$\quad \quad \quad w = 7.5$$

$$\boxed{\text{After 8 workouts gym B will be the better deal.}}$$

Solve each equation for y. Then evaluate for the given x-values.

15. $\frac{1}{2}y - 3x = 6$ evaluate for: $x = -2, 0, 5$

$$2 \cdot \frac{1}{2}y = (3x + 6) \cdot 2$$

$$y = 6x + 12$$

x	y
-2	0
0	12
5	42

16. $5y + 2x = 7$ evaluate for: $x = -1, 0, 2$

$$\frac{5y}{5} = \frac{-2x + 7}{5}$$

$$y = \frac{-2x + 7}{5}$$

x	y
-1	9/5
0	7/5
2	3/5

Solve each equation for x.

17. $\frac{1}{2}x - z = y$

$$2 \cdot \frac{1}{2}x = (y + z) \cdot 2$$

$$x = 2y + 2z$$

18. $ax + bx + c = d$

$$x(a+b) = \frac{d-c}{a+b}$$

$$x = \frac{d-c}{a+b}$$

Convert. Show your work!!

19. 4 gal/hr = 0.27 qts/min

$$\frac{4 \text{ gal}}{1 \text{ hr}} \cdot \frac{4 \text{ qts}}{1 \text{ gal}} \cdot \frac{1 \text{ hr}}{60 \text{ min}} = \frac{16 \text{ qts}}{60 \text{ min}} = \frac{4}{15} \approx 0.27$$

20. Tony ran 3 km 15 minutes. What was his average speed in miles per hour?

$$\frac{3 \text{ km}}{15 \text{ min}} \cdot \frac{0.621 \text{ mi}}{1 \text{ km}} \cdot \frac{60 \text{ min}}{1 \text{ hr}} = \frac{11.78 \text{ mi}}{15 \text{ hr}} = 7.452 \text{ mph}$$

21. Which is the better buy, 2 shirts for \$35 or 7 shirts for \$90? Explain.

$$\frac{\$35}{2 \text{ shirts}} = \$17.50 \text{ per shirt}$$

$$\frac{\$90}{7 \text{ shirts}} = \$12.86 \text{ per shirt}$$

Solve. Show your work!!

22. $\frac{5}{2.6} = \frac{15}{x}$

$$\frac{5x}{5} = \frac{39}{5}$$

$$x = 7.8$$

23. $\frac{3h+4}{10} = \frac{5}{2}$

$$2(3h+4) = 50$$

$$6h+8 = 50$$

$$-8 \quad -8$$

$$6h = 42$$

$$\frac{6h}{6} = \frac{42}{6}$$

$$h = 7$$

24. What percent of 8 is 12?

$$\frac{x \cdot 8}{8} = \frac{12}{8}$$

$$x = 1.5$$

$$150\%$$

25. What is 25% of 425?

$$x = .25 \cdot 425$$

$$x = 106.25$$

26. Forty-seven students, out of 100 surveyed, chose basketball as their favorite sport. If the school has 2700 students, how many students would likely say that basketball is their favorite sport?

$$\frac{47}{100} = \frac{x}{2700}$$

$$\frac{100x}{100} = \frac{126900}{100}$$

$$x = 1269 \text{ students}$$

27. Tommy opened a savings account with a simple interest rate of 5.5%. He initially deposited \$600. If he doesn't deposit any more, how much will be in his account after 10 years?

$$I = Prt$$

$$I = 600 \cdot 0.055 \cdot 10$$

$$I = \$330$$

He will have \$330 interest plus his initial investment of \$600 for a total of \$930 after 10 years.

28. The opening bid for a painting at auction is \$2000. If the painting actually sells for \$5000, what is the percent of increase to the nearest percent?

$$\frac{3000}{2000} = 1.5$$

$$150\% \text{ increase}$$

29. You estimate your teacher is 35 years old. He is actually 42. What is the percent error?

$$\frac{7}{42} = 0.17$$

$$17\% \text{ error}$$