

Unit 1 Practice Exam #2

Multiple Choice

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

- C. 1. Solve the equation. $5x + 8 - 3x = 22$
- a. $x = 1.75$ $2x + 8 = 22$
 $-8 \quad -8$
- b. $x = 3.75$
- C. d. $x = 15$

- A. 2. Determine whether the equation is an identity or has no solution: $2(x + 4) = 2x + 8$
- a. Identity $2x = 14$
 $x = 7$
- b. No Solution $2x + 8 = 2x + 8$

Short Answer

Write an algebraic expression for the phrase.

3. the sum of h and 2 $h + 2$

4. the product of x and 4 $4x$

5. Evaluate the expression $(ab)^2$ for $a = 7$ and $b = 3$.

$(7 \cdot 3)^2 = 21^2 = 441$

Simplify the expression.

6. $9(11 + 5) \div (10 - 4)$

$9(16) \div 6$
 $144 \div 6 = 24$

7. $3^3 \cdot 32 + 12 \div 4$

$(27 \cdot 32) + (12 \div 4)$
 $864 + 3 = 867$

8. $13[6^2 \div (5^2 - 4^2) + 9]$

$13[36 \div (25 - 16) + 9]$

$13[(36 \div 9) + 9]$

$13[4 + 9]$
 $13(13) = 169$

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9. $-\frac{2}{5} - \frac{8}{10} = -\frac{12}{10}$

$(= -\frac{6}{5})$

$$\begin{array}{r} -2 \cdot 2 \\ \hline 5 \cdot 2 \\ \hline -4 \\ 10 \end{array} \quad \begin{array}{r} -8 \cdot 1 \\ \hline 10 \cdot 1 \\ \hline -8 \\ 10 \\ \hline -12 \\ 10 \end{array}$$

10. $|-6-17|$

$|-23|$
 23

11. $1.3 - 5.7 - 5.07 + 4.7 - 5.93$

-10.7

12. $8.9(-1.9)$

-16.91

13. $(-6)^3$

$(-6)(-6)(-6)$

$(36)(-6)$
 -216

14. -8^2

$-(8 \cdot 8) = -64$

15. $\frac{(-2)(-9)}{(-6)}$

$= \frac{18}{-6} = -3$

16. $(-2-c)(-1)$

$2+c$

17. Evaluate the formula $V = \frac{Bh}{3}$ for $B = 36 \text{ in.}^2$ and $h = 40 \text{ in.}$

$\frac{(36)(40)}{3} = \frac{1440}{3} = 480 \text{ in.}^3$

18. $|-1.1|$

1.1

19. Evaluate $|-x - 2y|$ for $x = -5$ and $y = 4$.

$| -(-5) - 2(4) |$
 $| 5 - 8 |$
 $| -3 |$

3

20. Evaluate
- $b - 2a - c$
- for
- $a = 7$
- ,
- $b = 9$
- , and
- $c = -1$
- .

$$9 - 2(7) - (-1) \quad (-4)$$

$$9 - 14 + 1$$

21. Evaluate
- $x(-y + z)$
- for
- $x = -2$
- ,
- $y = 4$
- , and
- $z = 1$
- .

$$-2(-4 + 1) \quad (6)$$

$$-2(-3)$$

- 22.
- $-24 \div (-6)$

$$(4)$$

23. Evaluate
- $\frac{a}{b}$
- for
- $a = \frac{7}{3}$
- and
- $b = -2$
- .
- $\frac{\frac{7}{3}}{-2} = \frac{7}{3} \cdot \frac{1}{-2} = -\frac{7}{6} = (-\frac{7}{6})$

24. Solve the equation.
- $-6 = \frac{x}{8} + 4$

$$-4 \quad -4$$

$$\frac{-6}{(8)} - 10 = \frac{x}{8} (8)$$

$$-80 = x$$

25. Solve the equation.
- $14 = -d + 6$

$$\frac{-6}{8} = \frac{-d}{-1}$$

$$d = -8$$

26. Solve the equation.
- $3(y - 5) = -6$

$$3y - 15 = -6$$

$$+15 \quad +15$$

$$\frac{3y}{3} = \frac{9}{3}$$

$$y = 3$$

27. Solve the equation.
- $3x - 3 = 4x + 2$

$$\frac{-3x}{-3x} \quad \frac{-3x}{-3x}$$

$$\frac{-3}{-2} = \frac{x+2}{-2}$$

$$-5 = x$$

28. Solve the equation.
- $\frac{2}{3}x + 4 = 7$

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

$$\left(\frac{2}{3}\right) \frac{3}{2} x = \frac{3}{1} \left(\frac{3}{2}\right)$$

$$x = \frac{9}{2} \text{ or } 4.5$$

29. Solve the proportion.
- $\frac{6}{4} = \frac{5}{x}$

$$\frac{6x}{6} = \frac{-20}{6}$$

$$x = -3.\bar{3}$$

30. Solve the proportion.
- $\frac{(x+1)}{11} = \frac{10}{20}$

$$20(x+1) = 110$$

$$20x + 20 = 110$$

$$\frac{-20}{-20} \quad \frac{-20}{-20}$$

$$\frac{20x}{20} = \frac{90}{20}$$

$$x = \frac{9}{2} \text{ or } 4.5$$

31. The sum of two consecutive integers is 55. Write an equation that models this situation and find the values of the two integers.

Let $x = 1^{\text{st}}$ integer
 $x+1 = 2^{\text{nd}}$ integer

$$\begin{aligned} x + (x+1) &= 55 \\ 2x + 1 &= 55 \\ \underline{-1} & \\ 2x &= 54 \\ \underline{2} & \\ x &= 27 \end{aligned}$$

$$x = 27, 28$$

(-3) $2 = \frac{10 + z}{3}$

$$-6 = 10 + z$$

$$\begin{aligned} -10 & \\ \underline{-10} & \\ -16 &= z \end{aligned}$$

33. $58 + 1 + 4c = 83$

$$\begin{aligned} 59 + 4c &= 83 \\ \underline{-59} & \\ 4c &= 24 \end{aligned}$$

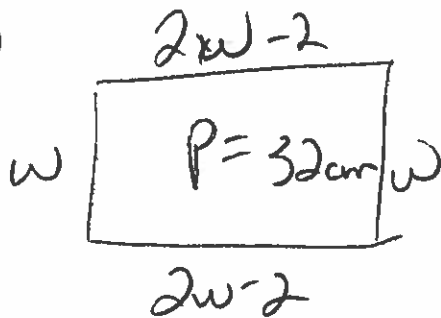
$$\frac{4c}{4} = \frac{24}{4}$$

$$c = 6$$

34. The length of a rectangle is 2 centimeters less than twice its width. The perimeter of the rectangle is 32 cm. What are the dimensions of the rectangle?

Let $w = \text{width}$

$2w - 2 = \text{length}$



$$\begin{aligned} 6w - 4 &= 32 \\ +4 & \quad +4 \end{aligned}$$

$$\begin{aligned} \underline{6w} &= \underline{36} \\ 6 & \quad 6 \end{aligned}$$

$$w = 6 \text{ cm}$$

$$\begin{aligned} l &= 2(6) - 2 \\ &= 12 - 2 \end{aligned}$$

$$l = 10 \text{ cm}$$

or $2w + 2(2w - 2) = 32$

$$2w + 4w - 4 = 32$$

$$6w - 4 = 32$$