Name Key Period _____

Chapter 2 Review

Write an equation for each sentence. Then, solve the equation.

1. Five times x decreased by 8 is 32.

$5x - 8 = 32$
$+8 \quad +8$
$\frac{5x}{5} = \frac{40}{5} \Rightarrow \boxed{x = 8}$

2. The product of b and negative 9 is 81.

$\frac{-9b}{-9} = \frac{81}{-9} \Rightarrow \boxed{b = -9}$

Find each percent of change.

3. Original: 72
New: 48

$\frac{-24}{72} * 100\% \approx \boxed{-33\%}$

4. Original: 25
New: 40

$\frac{15}{25} * 100\% = \boxed{60\%}$

Find the final price of each item.

5. Shirt: \$7.99
Sales Tax: 8.5%

$(.085)(7.99) = .68$
$7.99 + .68 = \boxed{\$8.67}$

6. Hat: \$15
Discount: 20%
Sales Tax: 9%

$(.20)(15) = 3$
$15 - 3 = \$12$
$(.09)(12) = 1.08$
$12 + 1.08 = \boxed{\$13.08}$

Are the following fractions equivalent? Write yes or no.

7. $\frac{6}{11}, \frac{72}{134}$ $804 \neq 792$ NO

8. $\frac{13}{42}, \frac{26}{82}$ $1066 \neq 1092$ NO

Evaluate the expression if $a = 7$ and $b = -5$.

9. $|-2a + b| - 4$

$|-2(7) + (-5)| - 4$
$|-19| - 4$
$19 - 4 = \boxed{15}$

Solve each absolute value equation.

10. $|-3x - 13| = 14$

$-3x - 13 = 14$ or $-3x - 13 = -14$
$-3x = 27$ $-3x = -1$
$x = -9$ $x = 1/3$
$\boxed{\{-9, \frac{1}{3}\}}$

11. $\left|\frac{5}{6}x - 2x\right| = -\frac{2}{3}$

NO SOLUTION

Solve each equation.

12. $\frac{7}{6} \cdot \frac{6}{7}x = \frac{2}{7} \cdot \frac{7}{6}$

$\boxed{x = \frac{1}{3}}$

13. $c - \frac{1}{12} = \frac{7}{12}$

$+1/12 \quad +1/12$
$c = \frac{8}{12} = \boxed{\frac{2}{3}}$

Name _____ Period _____

14. $\frac{-b+13}{5} = 23$ · 5

$-b+13 = 115$

$-b = 102$

$b = -102$

15. $4h - 20 = -10h + 8$

$14h = 28$

$h = 2$

16. $2(7 + k) = 3 + 3k - k$

$14 + 2k = 3 + 2k$

No solution

17. $8(2m - 1) = 4(4m - 2)$

$16m - 8 = 16m - 8$

ALL Real #'s

Solve each proportion.

18. $\frac{u}{35} = \frac{-2}{7}$

$7u = -70$

$u = -10$

19. $\frac{18}{n+6} = \frac{6}{n}$

$18n = 6(n+6)$

$18n = 6n + 36$

$12n = 36$

$n = 3$

Solve each equation or formula for the variable indicated.

20. $P = 2l + 2w$, *for* l

$\frac{P-2w}{2} = \frac{2l}{2}$

$l = \frac{P-2w}{2}$ OR $l = \frac{P}{2} - w$

21. $\frac{x+2z}{y} = 5$, *for* z

$x + 2z = 5y$

$2z = 5y - x$

$z = \frac{5y-x}{2}$

Use dimensional analysis to convert each of the following.

22. Convert 75 miles per hour to feet per second. (5,280 feet = 1 mile)

$\frac{75 \text{ mi}}{\text{hr}} \cdot \frac{5280 \text{ ft}}{1 \text{ mi}} \cdot \frac{1 \text{ hr}}{3600 \text{ sec}} =$ 110 ft/sec

23. Convert 9 days to minutes.

$9 \text{ days} \cdot \frac{24 \text{ hr}}{1 \text{ day}} \cdot \frac{60 \text{ min}}{1 \text{ hr}} =$ 12,960 min

Use a proportion to solve the word problem.

24. Norwalk and Cleveland are approximately 50 miles away from each other. If the scale on a map is 2 cm = 15 miles, how far apart are the cities on the map (in cm)?

$\frac{2 \text{ cm}}{15 \text{ mi}} = \frac{x \text{ cm}}{50 \text{ mi}}$

$100 = 15x$

$x \approx$ 6.67 cm