Name_____ Date_____ Period_____

2-2 to 2-5 Review

ections 2-2 to 2-4: Solving two step, multi-step and equations with variables on both sides.

Solve the following equations.

1. $19 = 3x + 7$

$-7 \quad -7$

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

$4 = x$

2. $17 = \frac{w}{5} + 13$

$-13 \quad -13$

$5(4) = \left(\frac{w}{5}\right)5$

$20 = w$

3. $11x - 9x = 18$

$\frac{2x}{2} = \frac{18}{2}$

$x = 9$

4. $7\left(\frac{z-8}{7}\right) = (3)7$

$z - 8 = 21$

$+8 \quad +8$

$z = 29$

5. $5h + 2(11 - h) = -5$

$5h + 22 - 2h = -5$

$3h + 22 = -5$

$-22 \quad -22$

$\frac{3h}{3} = \frac{-27}{3}$

$h = -9$

6. $\frac{1}{3}(d + 3) = 5$

$\frac{1}{3}d + 1 = 5$

$-1 \quad -1$

$3\left(\frac{1}{3}d\right) = (4)3$

$d = 12$

Solve the following equations.

7. $8.9 + 3.6a - 1.2 = 14.9$

$7.7 + 3.6a = 14.9$
$-7.7 \quad -7.7$

$\frac{3.6a}{3.6} = \frac{7.2}{3.6}$

$a = 2$

8. $\frac{1}{3}x - \frac{2}{9} = \frac{12}{18}$

LCD = 18

$6x - 4 = 12$
$+4 \quad +4$

$\frac{6x}{6} = \frac{16}{6}$

$x = \frac{8}{3}$

9. $\frac{3}{2}y - 2 = \frac{7}{10} - \frac{21}{10}y$

LCD: 10

$15y - 20 = 7 - 21y$
$+21y \quad +21y$

$36y - 20 = 7$
$+20 \quad +20$

$\frac{36y}{36} = \frac{27}{36}$

$y = \frac{3}{4}$

10. $5(n + 2) = \frac{3}{5}(5 + 10n)$

$5n + 10 = \frac{3}{5} \cdot \frac{5}{1} + \frac{3}{5} \cdot \frac{10n}{1}$

$5n + 10 = 3 + 6n$
$-5n \quad -5n$

$10 = 3 + n$
$-3 \quad -3$

$7 = n$

Answer each word problem by defining the variable, writing an equation, and solving it. Write your answer in a sentence.

11. A dance academy charges $24 per class and a one-time registration fee of $15. A student paid a total of $687 to the academy. Find the number of classes the student took.

x = # of classes student took

$687 = 24x + 15$
$-15 \quad -15$

$\frac{672}{24} = \frac{24x}{24}$

$28 = x$

The student took 28 classes

Answer the word problem by defining the variable, writing an equation, and solving it. Write your answer in a sentence.

12. Dan and Sydney are getting high-speed Internet access at the same time. Dan's provider charges a one-time $64 fee for installation and $42 per month. Sydney's provider has free installation and chargers $57 per month. After how many months will Dan have the better deal for Internet service?

x = # of months

Dan: $64 + 42x$

Sydney: $57x$

* If you want to know when Dan will have a better deal, set the two equal to each other.

$64 + 42x = 57x$

$-42x \quad -42x$

$\frac{64}{15} = \frac{15x}{15}$

$4\frac{4}{15} = x$ months

So, after 4 months Dan will be better, because at $4\frac{4}{15}$ months the costs are the same.

Section 2-5: Solving literal equations (equations with mostly variables in them)

Solve each equation for the indicated variable.

13. $-2x + 5y = 12$ for y

$+2x \quad +2x$

$\frac{5y}{5} = \frac{2x + 12}{5}$

$y = \frac{2x+12}{5}$

14. $a - 2b = -10$ for b

$-a \quad -a$

$\frac{-2b}{-2} = \frac{-10 - a}{-2}$

$b = \frac{-10 - a}{-2}$

15. $y = \frac{x - v}{b}$ for x

$b(y) = \left(\frac{x - v}{b}\right)b$

$by = x - v$

$+v \quad +v$

$by + v = x$

16. $ax + 2xy = 14$ for y

$-ax \quad -ax$

$\frac{2xy}{2x} = \frac{14 - ax}{2x}$

$y = \frac{14 - ax}{2x}$