NAME _key_

Lesson 9.11 Solving Two-Step Equations

Some problems with variables require more than one step to solve. Use the properties of equality to undo each step and find the value of the variable.

$2n - 7 = 19$

First, undo the subtraction by adding.

$2n - 7 + 7 = 19 + 7 \quad 2n = 26$

Then, undo the multiplication by dividing.

$\frac{2n}{2} = \frac{26}{2} \quad n = 13$

$\frac{n}{3} + 5 = 11$

First, undo the addition by subtracting.

$\frac{n}{3} + 5 - 5 = 11 - 5 \quad \frac{n}{3} = 6$

Then, undo the division by multiplying.

$\frac{n}{3} \times 3 = 6 \times 3 \quad n = 18$

Find the value of the variable in each equation. ① restar o sumar ② multiplicar o dividir

1. $(2n) + 2 = 16$ ___7___
$-2 \quad -2$
$\frac{2n}{2} = \frac{14}{2}$
$\boxed{n=7}$

2. $(\frac{a}{3}) - 1 = 4$ ___15___
$+1 \quad +1$
$3 \cdot \frac{a}{3} = 5 \cdot 3$
$\boxed{a = 15}$

3. $(\frac{b}{4}) + 2 = 11$ ___36___
$-2 \quad -2$
$4 \cdot \frac{b}{4} = 9 \cdot 4$
$\boxed{b = 36}$

4. $(11p) - 5 = 28$ ___3___
$+5 \quad +5$
$\frac{11p}{11} = \frac{33}{11}$
$\boxed{p = 3}$

5. $(8b) + 12 = 52$ ___5___
$-12 \quad -12$
$\frac{8b}{8} = \frac{40}{8}$
$\boxed{b = 5}$

6. $(\frac{r}{20}) - 3 = 3$ ___120___
$+3 \quad +3$
$20 \cdot \frac{r}{20} = 6 \cdot 20$
$\boxed{r = 120}$

7. $(\frac{m}{16}) + 7 = 10$ ___48___
$-7 \quad -7$
$16 \cdot \frac{m}{16} = 3 \cdot 16$
$\boxed{m = 48}$

8. $(6n) + 4 = 64$ ___10___
$-4 \quad -4$
$\frac{6n}{6} = \frac{60}{6}$
$\boxed{n = 10}$

9. $(4s) - 5 = 39$ ___11___
$+5 \quad +5$
$\frac{4s}{4} = \frac{44}{4}$
$\boxed{s = 11}$

Solve. Show Work!

10. $\frac{a}{9} - 3 = 6$ _____ 81

$\qquad +3 \quad +3$

$9 \cdot \frac{a}{9} = 9 \cdot 9$

$\boxed{a = 81}$

11. $5d + 6 = 71$ _____ 13

$\qquad -6 \quad -6$

$\frac{5d}{5} = \frac{65}{5}$

$\boxed{d = 13}$

12. $\frac{m}{8} + 5 = 14$ _____ 72

$\qquad -5 \quad -5$

$8 \cdot \frac{m}{8} = 9 \cdot 8$

$\boxed{m = 72}$

13. $3p + 12 = 54$ _____ 14

$\qquad -12 \quad -12$

$\frac{3p}{3} = \frac{42}{3}$

$\boxed{p = 14}$

14. $\frac{n}{3} + 12 = 27$ _____

$\qquad -12 \quad -12$

$3 \cdot \frac{n}{3} = 15 \cdot 3$

$\boxed{n = 45}$

15. $5b - 7 = 93$ _____ 20

$\qquad +7 \quad +7$

$\frac{5b}{5} = \frac{100}{5}$

$\boxed{b = 20}$

16. $4x + 2x + 25 = 73$

$6x + 25 = 73$

$\qquad -25 \quad -25$

$\frac{6x}{6} = \frac{48}{6} \qquad \boxed{x = 8}$

① combinar
términos
semejantes

② sumar o
restar

③ dividir o
multiplicar

17. $5r - 2r - 11 = 43$

$3r - 11 = 43$

$\qquad +11 \quad +11$

$\frac{3r}{3} = \frac{54}{3} \qquad \boxed{r = 18}$

18. $4m + m + 13 = 68$

$5m + 13 = 68$

$\qquad -13 \quad -13$

$\frac{5m}{5} = \frac{55}{5} \qquad \boxed{m = 11}$