

Two-Step *Equations*

Answer key

7.EE.B.4

14 problems

1. Is $x = 4$ a solution of $3x + 2 = 14$? Write yes or no and explain in one sentence.

Answer YesSubstitute $x = 4$: $3(4) + 2 = 12 + 2 = 14$, which is true, so $x = 4$ is a solution.

2. Solve for x :

$$2x + 5 = 13$$

Answer $x = 4$ Subtract 5: $2x = 8$. Divide by 2: $x = 4$.

3. Solve for n :

$$3n - 7 = 8$$

Answer $n = 5$ Add 7: $3n = 15$. Divide by 3: $n = 5$.

4. Solve for y :

$$\frac{y}{4} + 6 = 10$$

Answer $y = 16$ Subtract 6: $\frac{y}{4} = 4$. Multiply by 4: $y = 16$.

5. Solve for a :

$$5a + 9 = 9$$

Answer $a = 0$ Subtract 9: $5a = 0$. Divide by 5: $a = 0$.

6. Solve for m :

$$\frac{m}{3} - 2 = 4$$

Answer $m = 18$ Add 2: $\frac{m}{3} = 6$. Multiply by 3: $m = 18$.

7. Solve for x :

$$-2x + 11 = 3$$

Answer $x = 4$ Subtract 11: $-2x = -8$. Divide by -2 : $x = 4$.

8. Solve for t :

$$4t - 3 = 10$$

Answer $t = \frac{13}{4}$

Add 3: $4t = 13$. Divide by 4: $t = \frac{13}{4}$.

9. Solve for p :

$$\frac{p + 5}{2} = 7$$

Answer $p = 9$

Multiply by 2: $p + 5 = 14$. Subtract 5: $p = 9$.

10. Solve for w :

$$1.5w + 4 = 13$$

Answer $w = 6$

Subtract 4: $1.5w = 9$. Divide by 1.5: $w = 6$.

11. Which equation has the solution $x = 7$?

Answer B) $3x - 4 = 17$

$3x - 4 = 17$ gives $3x = 21$, so $x = 7$. The others give $x = 5.5$, 12, and 6.6.

12. Write an equation for the sentence, then solve: "Six more than four times a number x is 30."

Answer $4x + 6 = 30$; $x = 6$

Translate to $4x + 6 = 30$. Subtract 6: $4x = 24$. Divide by 4: $x = 6$.

13. A taxi charges a \$3 flat fee plus \$2 per mile. A ride cost \$17. Write and solve an equation to find the number of miles m .

Answer $2m + 3 = 17$; $m = 7$ miles

Cost = fee plus rate times miles: $2m + 3 = 17$. Subtract 3: $2m = 14$, so $m = 7$ miles.

14. Lena joined a gym with a \$20 sign-up fee and equal monthly payments. After 5 months she had paid \$95 total. Write and solve an equation to find the monthly payment p .

Answer $5p + 20 = 95$; $p = \$15$

Total = sign-up plus monthly times months: $5p + 20 = 95$. Subtract 20: $5p = 75$, so $p = \$15$.