2-3 Solve Multiplication and Division Equations

Name _____   Date _____

Solve: $\dfrac{d}{6} = -8$

$6 \cdot \dfrac{d}{6} = -8 \cdot 6$ ← Multiply each side by 6 to isolate d.

$d = -48$

Check: $\dfrac{d}{6} = -8$

$\dfrac{(-48)}{6} \overset{?}{=} -8$ ← Substitute -48 for d.

$-8 = -8$ **True**

Solution set: $\{-48\}$

Solve: $-\dfrac{5}{7}f = -45$

$\left[\left(-\dfrac{7}{5}\right) \cdot \left(-\dfrac{5}{7}\right)\right]f = -\dfrac{7}{5}(-45)$ ← Multiply each side by the reciprocal of $-\dfrac{5}{7}$.

$f = 63$

Check: $-\dfrac{5}{7}f = -45$

$-\dfrac{5}{7} \cdot \overset{9}{(\cancel{63})} \overset{?}{=} -45$ ← Substitute 63 for f.

$-45 = -45$ **True**

Solution set: $\{63\}$

**Solve each equation. Write a justification for each step.
Then check each solution. Write your solution.**

1. $3g = 24$

$\dfrac{3g}{3} = \dfrac{24}{3}$

$g = 8$

Check: $3(8) \overset{?}{=} 24$

$24 = 24$ True

$\{8\}$

2. $5h = 30$

3. $-111 = 37d$

4. $-256 = 32f$

5. $-2b = 3.8$

6. $-9n = 1.8$

7. $-2.16 = -7.2t$

8. $-7.15 = -1.1w$

9. $\dfrac{z}{3} = -2$

10. $\dfrac{p}{4} = -5$

11. $-3.2 = \dfrac{e}{1.1}$

12. $-4.2 = \dfrac{k}{3.1}$

13. $\dfrac{5a}{-6} = -10$

14. $\dfrac{7c}{-9} = -28$

15. $1\dfrac{1}{2} = -5d$

16. $9\dfrac{3}{4} = -3f$

Use with SOURCEBOOK **Lesson 2-3, pages 46–49.**

Solve. Show your work.

17. Yoni's dog weighs twice as much as Uri's dog. If Yoni's dog weighs 62 pounds, what is the weight of Uri's dog?

18. A company ships 28 boxes with 45 games in each box. How many games does the company ship?

19. Olivia plants 435 trees in 15 rows. She plants the same number in each row. How many trees are in each row?

20. A maple tree is 3 times the height of an oak tree. If the maple is 27 feet high, how high is the oak?

21. The area of a rectangular plot of land is 562.48 km². If the width of the land is 15.8 km, what is its length? (*Hint:* $\text{Area}_{\text{rectangle}} = \ell w$)

22. A forest is rectangular in shape. Its length is 65.8 km. If the area of the forest is 3901.94 km², what is its width?

23. The area of a triangle is 5.4 cm². If its base is 3 cm, what is its height? (*Hint:* $\text{Area}_{\text{triangle}} = \frac{1}{2}bh$)

24. A triangular flag has a height of 8.5 in. Its area is 43.35 in.² What is the length of its base?

25. Marsha used $\frac{3}{4}$ of the paper she bought to print flyers for a fundraiser. If she printed 1800 flyers, how many pieces of paper did she buy?

26. Yau and Sophia collected $\frac{2}{3}$ of all the cans that were collected for recycling. If they collected 3894 cans, how many cans were collected for recycling?

WRITE ABOUT IT

27. To solve the equation $\frac{2r}{5} = 30$, Nina multiplied by 5 and then divided by 2 to get $r = 75$. Explain why Nina's method works.