Answers for 2.5

For use with pages 108–111

2.5 Skill Practice

1. Reflexive Property of Equality for Angle Measure

2. Substitute the value of a into the original equation to see if it is a solution.

3. Subtraction Property of Equality, Addition Property of Equality, Division Property of Equality

4. Distributive Property, Subtraction Property of Equality, Addition Property of Equality

5. D

6. Equation (Reason)

   $5x - 10 = -40$ (Given)

   $5x = -30$ (Addition Property of Equality)

   $x = -6$ (Division Property of Equality)

7. Equation (Reason)

   $4x + 9 = 16 - 3x$ (Given)

   $7x + 9 = 16$ (Addition Property of Equality)

   $7x = 7$ (Subtraction Property of Equality)

   $x = 1$ (Division Property of Equality)

8. Equation (Reason)

   $5(3x - 20) = -10$ (Given)

   $15x - 100 = -10$ (Distributive Property)

   $15x = 90$ (Addition Property of Equality)

   $x = 6$ (Division Property of Equality)

9. Equation (Reason)

   $3(2x + 11) = 9$ (Given)

   $6x + 33 = 9$ (Distributive Property)

   $6x = -24$ (Subtraction Property of Equality)

   $x = -4$ (Division Property of Equality)

10. Equation (Reason)

    $2(-x - 5) = 12$ (Given)

    $-2x - 10 = 12$ (Distributive Property)

    $-2x = 22$ (Addition Property of Equality)

    $x = -11$ (Division Property of Equality)

11. Equation (Reason)

$44 - 2(3x + 4) = -18x$ (Given)

$44 - 6x - 8 = -18x$ (Distributive Property)

$36 - 6x = -18x$ (~~Simplify~~) Subst. p.o.e.

$36 = -12x$ (Addition Property of Equality)

$-3 = x$ (Division Property of Equality)

12. Equation (Reason)

$4(5x - 9) = -2(x + 7)$ (Given)

$20x - 36 = -2x - 14$ (Distributive Property)

$22x - 36 = -14$ (Addition Property of Equality)

$22x = 22$ (Addition Property of Equality)

$x = 1$ (Division Property of Equality)

13. Equation (Reason)

$2x - 15 - x = 21 + 10x$ (Given)

$x - 15 = 21 + 10x$ (~~Simplify~~) Distr. prop

$-15 = 21 + 9x$ (Subtraction Property of Equality)

$-36 = 9x$ (Subtraction Property of Equality)

$-4 = x$ (Division Property of Equality)

14. Equation (Reason)

$3(7x - 9) - 19x = -15$ (Given)

$21x - 27 - 19x = -15$ (Distributive Property)

$2x - 27 = -15$ (~~Simplify~~) Subst. p.o.e.

$2x = 12$ (Addition Property of Equality)

$x = 6$ (Division Property of Equality)

15. Equation (Reason)

$5x + y = 18$ (Given)

$y = 18 - 5x$ (Subtraction Property of Equality)

16. Equation (Reason)

$-4x + 2y = 8$ (Given)

$2y = 4x + 8$ (Addition Property of Equality)

$y = 2x + 4$ (Division Property of Equality)

17. Equation (Reason)

$12 - 3y = 30x$ (Given)

$-3y = 30x - 12$ (Subtraction Property of Equality)

$y = -10x + 4$ (Division Property of Equality)

18. Equation (Reason)

$3x + 9y = -7$ (Given)

$9y = -3x - 7$
(Subtraction Property of Equality)

$y = -\frac{1}{3}x - \frac{7}{9}$
(Division Property of Equality)

19. Equation (Reason)

$2y + 0.5x = 16$ (Given)

$2y = -0.5x + 16$
(Subtraction Property of Equality)

$y = -0.25x + 8$
(Division Property of Equality)

20. Equation (Reason)

$\frac{1}{2}x - \frac{3}{4}y = -2$ (Given)

$-\frac{3}{4}y = -\frac{1}{2}x - 2$
(Subtraction Property of Equality)

$y = \frac{2}{3}x + \frac{8}{3}$
(Division Property of Equality)

21. $20 + CD$

22. $m\angle 2 = m\angle 1$

23. AB, CD

24. 5, 40

25. $m\angle 1 = m\angle 3$

30. 9, 9

26. x should be subtracted from each side, not added.

Equation (Reason)

$7x = x + 24$ (Given)

$6x = 24$
(Subtraction Property of Equality)

$x = 4$
(Division Property of Equality)

27. *Sample answer:* Look in the mirror and see your reflection; 12 in. = 1 ft, so 1 ft = 12 in.; 10 pennies = 1 dime and 1 dime = 2 nickels, so 10 pennies = 2 nickels.

28. Equation (Reason)

$AD = AB, DC = BC$ (Given)

$AC = AC$
(Reflexive Property of Equality)

$AD + DC = AB + DC$
(Addition Property of Equality)

$AD + DC = AB + BC$
(Substitution)

$AD + DC + AC$
$= AB + BC + AC$
(Addition Property of Equality)

29. Equation (Reason)

$AD = CB, DC = BA$ (Given)

$AC = AC$
(Reflexive Property of Equality)

$AD + DC = CB + DC$
(Addition Property of Equality)

$AD + DC = CB + BA$
(Substitution)

$AD + DC + AC$
$= CB + BA + AC$
(Addition Property of Equality)

30. 9, 9

2.5 Problem Solving

31. Equation (Reason)

$P = 2\ell + 2w$ (Given)

$P - 2w = 2\ell$
(Subtractive Property of Equality)

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

(Division Property of Equality)

16.5 m

32. Equation (Reason)

$A = \frac{1}{2}bh$ (Given)

$2A = bh$
(Multiplication Property of Equality)

$\frac{2A}{b} = h$

(Division Property of Equality)

68 in.

33. Row 1: Marked in diagram; Row 2: Substitute $m\angle GHF$ for 90°; Row 3: Angle Addition Postulate; Row 4: Substitution Property of Equality; Row 5: $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 1$; Substitution Property of Equality; Row 6: Subtract $m\angle 1$ from both sides.

34. a. *Sample:*

b. $AC = BD$

$AB + BC = AC,$

$BC + CD = BD$

$AB + BC = BC + CD$

$AB = CD$

34. c.

Equation (Reason)

$AC = BD$ (Given)

$AB + BC = AC, BC + CD = BD$

(Segment Addition Postulate)

$AB + BC = BC + CD$

(Transitive Property of Equality)

$AB = CD$

(Subtraction Property of Equality)

35. 116°

36. a. Equation (Reason)

$C = \frac{5}{9}(F - 32)$ (Given)

$\frac{9}{5}C = F - 32$

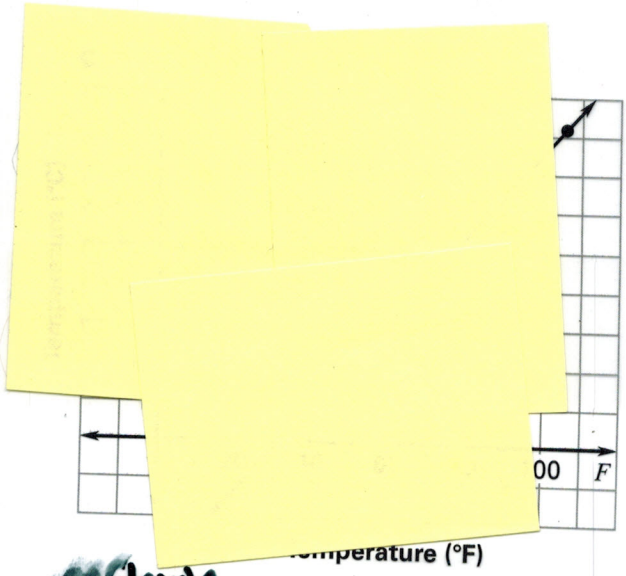
(Multiplication Property of Equality)

$\frac{9}{5}C + 32 = F$

(Addition Property of Equality)

b.

C	F
0°	32°
20°	68°
32°	89.6°
41°	105.8°



reflexive.

37. symmetric. trans. **38.** transitive

2.5 Mixed Review

39. 32° **40.** 92°

41. *Sample answer:* square

42. is