

2.4 Practice A

In Exercises 1–3, solve the equation. Justify each step.

1. $3x + 4 = 31$

2. $3(2x + 1) = 15$

3. $\frac{1}{2}(16x - 8) = 2(x + 16)$

In Exercises 4–6, solve the equation for the given variable. Justify each step.

4. $p = 2v; v$

5. $V = \pi r^2 h; h$

6. $S = \pi rs + \pi r^2; s$

In Exercises 7 and 8, name the property of equality that the statement illustrates.

7. If $x = y$, then $-2x = -2y$.

8. If $m\angle A = m\angle B$ and $m\angle B = 42^\circ$, then $m\angle A = 42^\circ$.

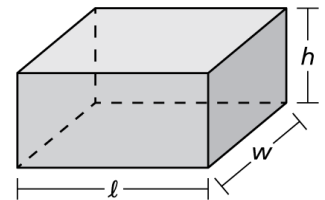
In Exercises 9–11, use the property to copy and complete the statement.

9. Addition Property of Equality: If $m\angle J = 30^\circ$, then $m\angle J + m\angle K = \underline{\hspace{2cm}}$.

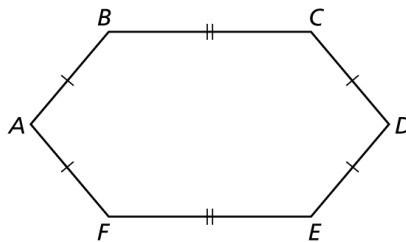
10. Reflexive Property of Equality: $GH = \underline{\hspace{2cm}}$

11. Distributive Property: If $3(x + 7) = 30$, then $\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = 30$.

12. The formula for the surface area of a rectangular prism is given by the equation $A = 2lw + 2lh + 2hw$, where l is the length, w is the width, and h is the height. Solve the formula for w and justify each step. Then find the width of the prism if the total surface area is 52 square inches, the length is 2 inches, and the height is 4 inches.



13. In the diagram, $AB = 3$ and $BC = 5$. Find the perimeter of the hexagon. Justify your answer using the properties of equality.



2.4

Practice B

In Exercises 1 and 2, solve the equation. Justify each step.

1. $3(x - 4) + 3 = x - 2$

2. $-1(x + 5) = 3[x + (2x - 1)]$

In Exercises 3 and 4, solve the equation for the given variable. Justify each step.

3. $I = \frac{1}{2}mr^2; m$

4. $E = \frac{1}{2}mv^2 + 9.8mh; h$

In Exercises 5 and 6, name the properties of equality that the statement illustrates.

5. If $x = y$, then $2x - 6 = 2y - 6$.

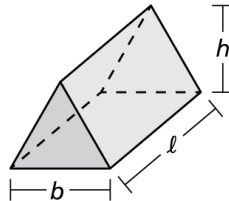
6. If $m\angle A = m\angle B$ and $m\angle B = 42^\circ$, then $m\angle A + 10 = 52^\circ$.

In Exercises 7 and 8, use the property to copy and complete the statement.

7. Multiplication Property of Equality: If $m\angle J = 30^\circ$, then $2m\angle J = \underline{\hspace{2cm}}$.

8. Transitive Property: If $3x + y = 7$ and $7 = 5x - 2y$, then $\underline{\hspace{2cm}}$.

9. The formula for the volume V of a triangular prism is given by the equation $V = \frac{1}{2}bhl$, where b is the base of the triangle, h is the height of the triangle, and λ is the length of the prism. Solve the formula for b . Justify each step. Then find the base of a prism with a volume of 128 cubic meters, a height of 8 meters, and a length of 4 meters.



10. In the diagram, $m\angle ACB = 25^\circ$ and \overline{CE} bisects $\angle DCF$. Explain how to find $m\angle DCE$.

