

In Exercises 17–22, name the property used in each step of the simplification.

$$\begin{aligned}
 17. \quad \frac{1}{2}(1 + 2t) &= \frac{1}{2} \cdot 1 + \frac{1}{2}(2t) & \text{a. } \underline{\quad?} \\
 &= \frac{1}{2} \cdot 1 + \left(\frac{1}{2} \cdot 2\right)t & \text{b. } \underline{\quad?} \\
 &= \frac{1}{2} \cdot 1 + 1 \cdot t & \text{c. } \underline{\quad?} \\
 &= \frac{1}{2} + t & \text{d. } \underline{\quad?}
 \end{aligned}$$

$$\begin{aligned}
 18. \quad (2 + a) + (-2) &= (a + 2) + (-2) & \text{a. } \underline{\quad?} \\
 &= a + [2 + (-2)] & \text{b. } \underline{\quad?} \\
 &= a + 0 & \text{c. } \underline{\quad?} \\
 &= a & \text{d. } \underline{\quad?}
 \end{aligned}$$

$$\begin{aligned}
 19. \quad \frac{1}{5}[(n + 5) + (-n)] &= \frac{1}{5}[(5 + n) + (-n)] & \text{a. } \underline{\quad?} \\
 &= \frac{1}{5}[5 + (n + (-n))] & \text{b. } \underline{\quad?} \\
 &= \frac{1}{5}[5 + 0] & \text{c. } \underline{\quad?} \\
 &= \frac{1}{5} \cdot 5 & \text{d. } \underline{\quad?} \\
 &= 1 & \text{e. } \underline{\quad?}
 \end{aligned}$$

$$\begin{aligned}
 20. \quad 3 + 4(x + 1) &= 3 + (4x + 4 \cdot 1) & \text{a. } \underline{\quad?} \\
 &= 3 + (4x + 4) & \text{b. } \underline{\quad?} \\
 &= (4x + 4) + 3 & \text{c. } \underline{\quad?} \\
 &= 4x + (4 + 3) & \text{d. } \underline{\quad?} \\
 &= 4x + 7 & \text{Substitution}
 \end{aligned}$$

$$\begin{aligned}
 21. \quad k + (k + 2) &= (k + k) + 2 & \text{a. } \underline{\quad?} \\
 &= (1 \cdot k + 1 \cdot k) + 2 & \text{b. } \underline{\quad?} \\
 &= (1 + 1)k + 2 & \text{c. } \underline{\quad?} \\
 &= 2k + 2 & \text{Substitution} \\
 &= 2k + 2 \cdot 1 & \text{d. } \underline{\quad?} \\
 &= 2(k + 1) & \text{e. } \underline{\quad?}
 \end{aligned}$$

$$\begin{aligned}
 22. \quad x(y + 1) + (-1)x &= x(y + 1) + x(-1) & \text{a. } \underline{\quad?} \\
 &= x[(y + 1) + (-1)] & \text{b. } \underline{\quad?} \\
 &= x[y + (1 + (-1))] & \text{c. } \underline{\quad?} \\
 &= x[y + 0] & \text{d. } \underline{\quad?} \\
 &= xy & \text{e. } \underline{\quad?}
 \end{aligned}$$