

Practice 2-5

Properties of Numbers

Name the property that each equation illustrates.

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| 1. $83 + 6 = 6 + 83$ | 2. $8 + x = x + 8$ |
| 3. $1 \cdot 4y = 4y$ | 4. $15x + 15y = 15(x + y)$ |
| 5. $(8 \cdot 7) \cdot 6 = 8 \cdot (7 \cdot 6)$ | 6. $\frac{2}{3}\left(\frac{3}{2}\right) = 1$ |
| 7. $3(a + 2b) = 3a + 6b$ | 8. $7x + 2y = 2y + 7x$ |
| 9. $7 + (8 + 15) = (7 + 8) + 15$ | 10. $x + (-x) = 0$ |
| 11. $x + y = y + x$ | 12. $6 \cdot (x \cdot y) = (6 \cdot x) \cdot y$ |
| 13. $16 + 0 = 16$ | 14. $3w + 5y = 5y + 3w$ |
| 15. $7(3 + 4y) = 21 + 28y$ | 16. $0 = 30 \cdot 0$ |
| 17. $4a + (5b + 6c) = (4a + 5b) + 6c$ | 18. $ab + c = ba + c$ |
| 19. $wr = rw$ | 20. $20(a + b) = 20(b + a)$ |

Give a reason to justify each step.

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| 21. a. $4c + 3(2 + c) = 4c + 6 + 3c$ | 22. a. $8w - 4(7 - w) = 8w - 28 + 4w$ |
| b. $ = 4c + 3c + 6$ | b. $ = 8w + (-28) + 4w$ |
| c. $ = (4c + 3c) + 6$ | c. $ = 8w + 4w + (-28)$ |
| d. $ = (4 + 3)c + 6$ | d. $ = (8 + 4)w + (-28)$ |
| e. $ = 7c + 6$ | e. $ = 12w + (-28)$ |
| | f. $ = 12w - 28$ |
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| 23. a. $5(x + y) + 2(x + y) = 5x + 5y + 2x + 2y$ |
| b. $ = 5x + 2x + 5y + 2y$ |
| c. $ = (5 + 2)x + (5 + 2)y$ |
| d. $ = 7x + 7y$ |

Use mental math to simplify each expression.

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| 24. $48 + 27 + 2 + 3$ | 25. $10 \cdot 72 \cdot 5 \cdot 2$ |
| 26. $10 \cdot 8 \cdot 3 \cdot 10$ | 27. $8\frac{1}{2} + 4\frac{1}{3} + 2\frac{1}{2} + 2\frac{2}{3}$ |
28. Henry bought an apple for \$0.75, some apricots for \$1.50, some cherries for \$3.25, and three bananas for \$1.50. Find the total cost of the fruit.
29. Suppose you buy some camping supplies. You purchase waterproof matches for \$3.95, a compass for \$18.25, flashlight batteries for \$3.75, and a map for \$2.05. Find the total cost of the supplies.
30. You go to the video store and rent some DVDs for \$8.50 and a video game for \$3.69. While there, you buy a box of popcorn for \$2.31 and a candy bar for \$1.50. Find the total cost of the items.