

# Understand and Apply



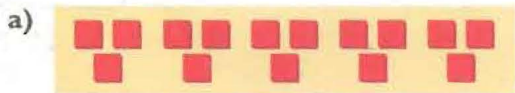
1. Use a pattern to find each quotient.

|                                  |                                  |
|----------------------------------|----------------------------------|
| a) $(+12) \div 4 = \blacksquare$ | b) $(+20) \div 5 = \blacksquare$ |
| $(+8) \div 4 = \blacksquare$     | $(+15) \div 5 = \blacksquare$    |
| $(+4) \div 4 = \blacksquare$     | $(+10) \div 5 = \blacksquare$    |
| $0 \div 4 = \blacksquare$        | $(+5) \div 5 = \blacksquare$     |
| $(-4) \div 4 = \blacksquare$     | $0 \div 5 = \blacksquare$        |
| $(-8) \div 4 = \blacksquare$     | $(-5) \div 5 = \blacksquare$     |
| $(-12) \div 4 = \blacksquare$    | $(-10) \div 5 = \blacksquare$    |
| $(-16) \div 4 = \blacksquare$    | $(-15) \div 5 = \blacksquare$    |
| $(-20) \div 4 = \blacksquare$    | $(-20) \div 5 = \blacksquare$    |

2. Use each multiplication sentence to calculate each quotient.

|                            |                                 |
|----------------------------|---------------------------------|
| a) $(+2) \times (+3) = +6$ | $(+6) \div (+3) = \blacksquare$ |
| b) $(-2) \times (+3) = -6$ | $(-6) \div (+3) = \blacksquare$ |
| c) $(+2) \times (-3) = -6$ | $(-6) \div (-3) = \blacksquare$ |
| d) $(-2) \times (-3) = +6$ | $(+6) \div (-3) = \blacksquare$ |

3. What is the total value of the tiles shown in each diagram?



4. a) Write a multiplication sentence that describes each grouping in Problem 3.

b) Write each related division sentence.

5. Tanese says, "Thinking about multiplication can help me divide. When I have to find the quotient for  $(-28) \div 4$ , I think, 'What would I have to multiply 4 by to get  $-28$ ?' Use Tanese's method to find each quotient.

a)  $(-81) \div 9$   
 b)  $(+45) \div 5$   
 c)  $(-56) \div 7$

6. Find the quotient.

WE a)  $(-12) \div 2$       b)  $(+72) \div 9$   
 c)  $(-49) \div 7$       d)  $(-16) \div 8$   
 e)  $(+9) \div 9$       f)  $(+54) \div 6$

7. Copy and complete each table.

a)

| FACTOR | FACTOR | PRODUCT        |
|--------|--------|----------------|
| +      | +      | $\blacksquare$ |
| +      | -      | $\blacksquare$ |
| -      | +      | $\blacksquare$ |
| -      | -      | $\blacksquare$ |

b)

| DIVIDEND | DIVISOR | QUOTIENT       |
|----------|---------|----------------|
| +        | +       | $\blacksquare$ |
| -        | -       | $\blacksquare$ |
| -        | +       | $\blacksquare$ |
| +        | -       | $\blacksquare$ |

8. Find the quotient.

|                       |                      |
|-----------------------|----------------------|
| a) $(-12) \div (-2)$  | b) $(+72) \div (-9)$ |
| c) $(-65) \div (-13)$ | d) $(-16) \div (+8)$ |
| e) $(-14) \div (+14)$ | f) $(+54) \div (+6)$ |

9. Divide.

|                       |                       |
|-----------------------|-----------------------|
| a) $(-56) \div 8$     | b) $18 \div (-9)$     |
| c) $\frac{-144}{-12}$ | d) $\frac{+250}{-25}$ |
| e) $\frac{-128}{+16}$ | f) $\frac{95}{-19}$   |

## In Your Journal

What is the most useful hint you could give to someone who is about to learn how to multiply and divide integers? Explain.

10. Write  $-72$  as a product of two integers in as many ways as possible.

11. a) Write a number sentence to represent the following situation.

b) Solve the problem.

Jan borrowed \$6 every day and now owes \$48. For how many days has she been borrowing money?

12. Write a problem that could be solved by each number sentence.

a)  $(-36) \div 4 = \blacksquare$     b)  $42 \div (-6) = \blacksquare$

13. Divide using a calculator.

a)  $(-2496) \div 12$     b)  $(-105) \div (-15)$   
 c)  $(-135) \div 15$     d)  $348 \div (-12)$   
 e)  $(-1722) \div 14$     f)  $(-504) \div (-8)$

14. Evaluate.

a)  $(+16) \div (-2) \div (-4)$   
 b)  $(-21) \div (+7) \div (-3)$   
 c)  $(-100) \div (-2) \div (-5)$   
 d)  $(-72) \div (+9) \div (+4)$

15. Write a conclusion about the sign of the quotient when three integers are involved.

16. Solve the equations.

a)  $4n = -20$     b)  $n \div 8 = -16$   
 c)  $7n + 2 = -12$     d)  $5n - 1 = 4$

17. Business reports and computer spreadsheets often use parentheses to indicate negative numbers. There are 100 shares in the company. What is the profit or loss per share each year?

| UNITED CONSOLIDATED GAS LTD. |           |           |           |
|------------------------------|-----------|-----------|-----------|
| Annual Report                | 1995      | 1994      | 1993      |
| SALES                        | \$239 000 | \$198 000 | \$205 000 |
| EXPENSES                     | \$208 000 | \$221 000 | \$228 000 |
| PROFIT(LOSS)                 |           |           |           |

18. a) To help his grandchildren learn about the stock market, Mr. Campbell bought each of them a share in a computer company. The total cost of the shares was \$24. If Mr. Campbell spent \$4 for each share, how many grandchildren does he have?

b) Unfortunately, when the children checked the newspaper a week later to see how much the shares were worth, they discovered that the value had gone down. The children's total loss came to \$12. How much did they lose per share?

c) Write equations to show how you solved parts (a) and (b).

Look for the stock market tables in the business section of a newspaper. Choose a stock and follow its progress for a few weeks. How does the newspaper use positive and negative numbers to communicate the changing value of the stock?



19. At a Midnight Madness sale, salespeople lowered the price of shoes on a sale table each hour for four hours. They lowered the price by the same amount each hour, and they reduced it by \$12 in all. What was the change in price each hour?



20. Four partners shared the \$150 000 cost of a fishing boat. So far, their fishing business has helped them recoup \$90 000 of this cost. Find each person's share of the remaining debt.

