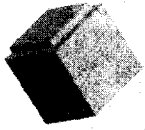## QUICK REVIEW

Study these examples of subtracting negative numbers.

$(-9) - (+5) = (-9) + (-5) = -14$ $(-9) - (-5) = (-9) + (+5) = -4$

$(9) - (+5) = (+9) + (-5) = 4$

Add or subtract.

1. $(-3) + (-10) =$ 2. $(-3) - (10) =$

3. $(6) - (-5) =$ 4. $(-8) - (-5) =$

Simplify by combining like terms.

EXAMPLE 1 $2A - 3B + 4A + 4B - 5A =$
              $2A + 4A - 5A - 3B + 4B =$
              $(2A + 4A - 5A) + (-3B + 4B) = A + B$

5. $5D - 6C + 8D - 3C + B =$ 6. $2A + B - A + 3B =$

7. $5Q + 3C - C + Q + 4Q - 5C =$ 8. $20 + 5X - 6Y + Y + 2X + X - 9 =$

9. 2X + 2 − X + 2X =

10. 3Y − 1 + 2Y − 1 − 4Y =

11. 5A − 6B − 3B + 10A − 8 =

12. 18X − 5Y − 9X + Y =

True or False.

13. Division is associative.

14. Multiplication is commutative.

15. Subtraction is associative.

Simplify by combining like terms.

1. $4Q + 2C - 2C - 2Q - 3C =$

2. $-5M - 7 + 3M - 4 + 5 =$

3. $2A - 3B + 4C - A + B + C =$

4. $4A - 5 - 2A + 7 - 1 =$

5. $4X - 3Y - 6Y + 10X - 5 =$

6. $15X - 4Y - 6X + Y =$

7. $15X + 6X - 4Y - 5Y - 14X + 10 =$

8. $3A - 4B + 6A + 7B + 8 =$

Solve. Use what you know about multiplying negative numbers to determine signs when dividing.

9. $(-3)(5) =$

10. $(-81) \div (-9) =$

11. $4 \div (-2) =$

12. $(-5)^2 =$

13. $4 + (-2) =$

14. $-4^2 =$

QUICK REVIEW

To multiply fractions, divide terms where possible, then multiply numerators and denominators.

EXAMPLE 1 $\quad \dfrac{5}{{}_3\cancel{6}} \times \dfrac{\cancel{3}^1}{7} \times \dfrac{\cancel{2}^1}{{}_1\cancel{3}} = \dfrac{5}{21}$

15. $\quad \dfrac{1}{4} \times \dfrac{7}{11} \times \dfrac{4}{7} =$
16. $\quad \dfrac{1}{2} \times \dfrac{5}{6} \times \dfrac{11}{12} =$

To divide fractions, find the same, or common, denominator and divide the numerators. Change to improper fractions first if necessary.

EXAMPLE 2 $\quad 1\dfrac{5}{7} \div 1\dfrac{3}{4} = \dfrac{12}{7} \div \dfrac{7}{4} = \dfrac{48}{28} \div \dfrac{49}{28} = \dfrac{48}{49}$

17. $\quad \dfrac{1}{3} \div \dfrac{4}{5} =$
18. $\quad 7\dfrac{1}{2} \div 2\dfrac{4}{7} =$

To divide fractions using the short cut, multiply by the reciprocal.

EXAMPLE 3 $\quad 1\dfrac{5}{7} \div 1\dfrac{3}{4} = \dfrac{12}{7} \div \dfrac{7}{4} = \dfrac{12}{7} \times \dfrac{4}{7} = \dfrac{48}{49}$

19. $\quad \dfrac{1}{3} \div \dfrac{4}{5} =$
20. $\quad 7\dfrac{1}{2} \div 2\dfrac{4}{7} =$

Simplify by combining like terms.

1. $2A - 3B + 4A + 4B - 5A =$

2. $18X + 5X - 6Y - 8Y - 11X + 10Y =$

3. $4A - 4B + 16A + 7B + 18 =$

4. $-5X + 3 + 8X - 4 =$

5. $8K - 6 + 3K - 2K + 3 =$

6. $10C - 3C - 9D + 3D - C =$

7. $13A - 8Z - 2A - 12Z =$

8. $7D - 4D - 4 + 5D + 8 - 7D =$

Solve.

9. $(-3)^2 =$

10. $-3^3 =$

11. $(-6)(-2) =$

12. $(-4) - (-3) =$

13. $\dfrac{4}{5} \times \dfrac{1}{2} \times \dfrac{5}{8} =$

14. $\dfrac{1}{2} \times \dfrac{6}{7} \times \dfrac{2}{3} =$

Find the same denominator and divide the numerators.

15. $\dfrac{5}{8} \div \dfrac{1}{7} =$

To divide, multiply by the reciprocal.

16. $\dfrac{5}{8} \div \dfrac{1}{7} =$

QUICK REVIEW

In a multiplication problem, the numbers being multiplied are the factors and the answer is the product.

EXAMPLE 1   The number 12 has several possible sets of factors.
They are 1 x 12, 2 x 6, and 3x 4.
The factors of 12 are 1, 2, 3, 4, 6, and 12.

EXAMPLE 2   The number 5 has only one possible set of factors,
which is 1 x 5. The factors of 5 are 1 and 5.

Twelve is a composite number because it has more than two factors. Five is a prime number because it has only two factors, one and itself. (One is not considered prime because it has only one factor.)

Any composite number may be written as a product of its prime factors. A factor tree or repeated division may be used to find the prime factors of a given number.

EXAMPLE 3

```
      18
    /    \
   2      9
        /   \
       3     3
```
2 x 3 x 3

```
       3
    ┌─────
  3 │ 9
  2 │ 18
```
2 x 3 x 3
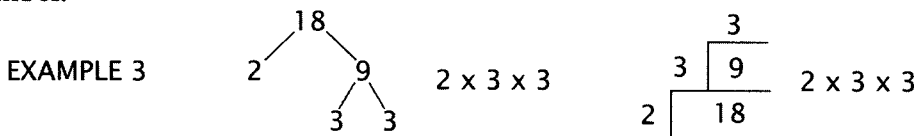
Find the prime factors of the following numbers using either method.

17. 28   18. 42

19. 48   20. 100