

1-5 Reteaching



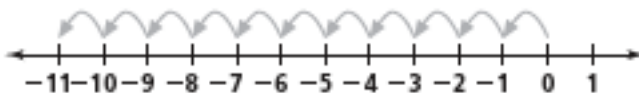
You can add real numbers using a number line or using the following rules.

Rule 1: To add two numbers with the same sign, add their absolute values. The sum has the same sign as the addends.

Problem

What is the sum of -7 and -4 ?

Use a number line.



Start at zero.
Move 7 spaces to the left to represent -7 .
Move another 4 spaces to the left to represent -4 .

The sum is -11

Use the rule.

$$-7 + (-4)$$

$$|-7| + |-4|$$

$$7 + 4 = 11$$

$$-7 + (-4) = -11$$

The addends are both negative.

Add the absolute values of the addends
 $|-7| = 7$ and $|-4| = 4$.

The sum has the same sign as the addends.

Rule 2: To add two numbers with different signs, subtract their absolute values. The sum has the same sign as the addend with the greater absolute value.

Problem

What is the sum of -6 and 9 ?

Use the rule.

$$9 + (-6)$$

$$|9| - |-6|$$

$$9 - 6 = 3$$

$$9 + (-6) = 3$$

The addends have different signs.

Subtract the absolute values of the addends.

$$|9| = 9 \text{ and } |-6| = 6.$$

The positive addend has the greater absolute



Exercises

Find each sum.

1. $-4 + -12$

2. $-3 + 15$

3. $-9 + 1$

4. $13 + (-7)$

5. $8 + (-14)$

6. $-11 + (-5)$

7. $4.5 + (-1.1)$

8. $-5.1 + 8.3$

9. $6.4 + 9.8$

Addition and subtraction are inverse operations. To subtract a real number, add its opposite.

Problem

What is the difference $-5 - (-8)$?

$$-5 - (-8) = -5 + 8$$

The opposite of -8 is 8.

$$= 3$$

Use Rule 2.

The difference $-5 - (-8)$ is 3.

Exercises

Find each difference.

10. $8 - 20$

11. $6 - (-12)$

12. $-4 - 9$

13. $-8 - (-14)$

14. $-11 - (-4)$

15. $17 - 25$

16. $3.6 - (-2.4)$

17. $-1.5 - (-1.5)$

18. $-1.7 - 5.4$

19. The temperature was 5°C . Five hours later, the temperature had dropped 10°C . What is the new temperature?

20. **Reasoning** Which is greater, $52 + (-77)$ or $52 - (-77)$? Explain.

(1) -16, (2) 12, (3) -8, (4) 6, (5) -6, (6) -16, (7) 3.4, (8) 3.2, (9) 16.2, (10) -12, (11) 18, (12) -13, (13) 6, (14) -6, (15) -8, (16) 6, (17) 0, (18) -7.1, (19) -5°C , (20) $12 - (-77)$ is greater. Since subtracting a negative is the same as adding a positive, we get $52 + 77$. The result of adding a positive 77 will be greater than the result of adding a negative 77 to the same number.



1-6

Reteaching

Multiplying and Dividing Real Numbers

You need to remember two simple rules when multiplying or dividing real numbers.

1. The product or quotient of two numbers with the same sign is positive.
2. The product or quotient of two numbers with different signs is negative.

Problem

What is the product $-6(-30)$?

$$-6(-30) = 180$$

-6 and -30 have the same sign so the product is positive.

Problem

What is the quotient $72 \div (-6)$?

$$72 \div (-6) = -12$$

72 and -6 have different signs so the quotient is negative.

Exercises

Find each product or quotient.

1. $-5(-6)$

2. $7(-20)$

3. -3×22

4. $44 \div 2$

5. $81 \div (-9)$

6. $-55 \div (-11)$

7. $-62 \div 2$

8. $25 \cdot (-4)$

9. $(-6)^2$

10. $-9.9 \div 3$

11. $-7.7 \div (-11)$

12. $-1.4(-2)$

13. $-\frac{1}{2} \cdot \frac{1}{3}$

14. $-\frac{2}{3} \cdot \frac{3}{5}$

15. $\frac{3}{4} \cdot \frac{1}{3}$

16. The temperature dropped 2°F each hour for 6 hours. What was the total change in temperature?

17. **Reasoning** Since $5^2 = 25$ and $(-5)^2 = 25$, what are the two values for the square root of 25?

(1) 30, (2) -140, (3) -66, (4) 22, (5) -9, (6) 5, (7) -31, (8) -100, (9) 36, (10) -3.3, (11) 0.7, (12) 2.8, (13) $-\frac{1}{6}$, (14) $\frac{2}{5}$, (15) $-\frac{1}{4}$,
(16) The total change in temperature was a 12 degree drop, (17) 5 and -5



The product of 7 and $\frac{1}{7}$ is 1. Two numbers whose product is 1 are called reciprocals. To divide a number by a fraction, multiply by its reciprocal.

Problem

What is the quotient $\frac{2}{3} \div \frac{5}{7}$?

$$\frac{2}{3} \div \left(-\frac{5}{7}\right) = \frac{2}{3} \times \left(-\frac{7}{5}\right)$$

To divide by a fraction, multiply by its reciprocal.

The signs are different so the answer is negative.

Exercises

Find each quotient.

18. $\frac{1}{2} \div \frac{1}{3}$

19. $-6 \div \frac{2}{3}$

20. $-\frac{2}{5} \div \frac{2}{3}$

21. $\frac{1}{2} \div \frac{1}{4}$

22. $\frac{5}{7} \div \frac{1}{2}$

23. $-\frac{2}{3} \div \frac{1}{4}$

24. **Writing** Another way of writing $\frac{a}{b}$ is $a \div b$. Explain how you could evaluate $\frac{\frac{1}{2}}{\frac{1}{6}}$.

What is the value of this expression?

(18) $\frac{3}{2}$, (19) -9 , (20) $\frac{3}{5}$, (21) -2 , (22) $\frac{10}{7}$, (23) $-\frac{8}{3}$, (24) 3

Lessons 1-5 and 1-6 Additional Practice



Simplify each expression.

1. $22 + (-33)$

2. $45 + (-54)$

3. $-\frac{4}{3} - \frac{4}{3}$

4. $\frac{4}{13} - \frac{4}{13}$

5. $-(-11 - 22)$

6. $(-2)(44)$

7. $(-3)^2$

8. -3^2

9. $\frac{3}{2} - \frac{2}{3}$

10. $\frac{3^2}{2^3}$

11. $\frac{-5^2}{(-5)^2}$

12. $81 \div (-9)$

13. $\frac{4^2}{5^2}$

14. $-\sqrt{25}$

15. $\sqrt{\frac{27}{3}}$

16. $\pm\sqrt{121}$

17. Your goal is to save \$50. So far, you have saved \$34. How much more do you need to save?

18. A company buys 1500 small items from a manufacturer for \$.02 apiece. What is the total cost of the items?

19. Your parents drove the family car 462 miles on 14 gallons of gas. On average, how many miles did the car travel on each gallon of gas?

(1) -11, (2) -9, (3) $-\frac{8}{3}$, (4) 0, (5) -11, (6) -88, (7) 9, (8) -9, (9) -1, (10) $\frac{9}{8}$, (11) -1, (12) -9, (13) $\frac{16}{25}$, (14) -5, (15) 3, (16) ± 11 , (17) You need to save \$16 more, (18) The total cost of the items is \$30, (19) On average, the car traveled 33 mpg.