Section 5.R.1 Operations with Real Numbers

Go to Section 5.R.1 Learn mode in Hawkes to follow along!

Addition with Real Numbers

Rules for Addition with Real Numbers

1. To add two real numbers with **like signs,**

a. _____

b. _____

2. To add two real numbers with **unlike signs,**

a. _____

b. _____

Example 2 **Addition with Unlike Signs**

Add.

a. $(-10)+3$ **b.** $10+(-3)$ **c.** $-\frac{7}{11}+\frac{5}{11}$

Solution

Exercises

Add

1. $(-16)+20$

2. $(-2)+(-9)$

3. $(-8)+(-6)+5$

4. $\left(-\frac{3}{8}\right)+\frac{7}{8}$

5. $(-1.7)+(-5.2)$

6. $(8.5)+(-7.9)$

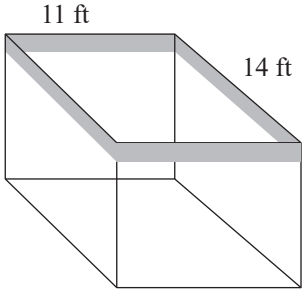
The Perimeter of a Polygon

The **perimeter** of a geometric figure is the _____

For polygons, the perimeter is the _____ of the lengths of its sides.

Example 4 Application: Calculating the Perimeter of a Rectangle

Barbara is redecorating and wants to put a wallpaper boarder around the top edge of her dining room. The dining room is in the shape of a rectangle and the dimensions are 11 ft by 14 ft. How many feet of wallpaper border will she need?

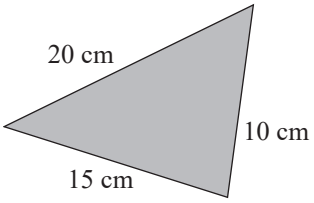


Solution

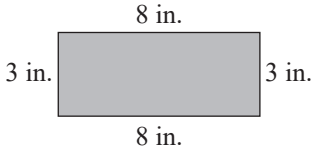
Exercises

Calculate the perimeter of each geometric figure.

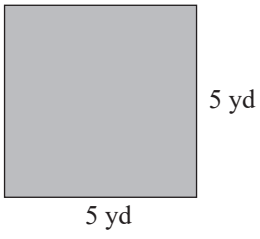
7. Find the perimeter of a triangle with side lengths 20 cm, 15 cm, and 10 cm.



8. Find the perimeter of a rectangle with dimensions 8 in. by 3 in.



9. Find the perimeter of a square with side length 5 yd.



Subtraction with Real Numbers

Rule for Subtraction with Real Numbers

For real numbers a and b,

_____.

To subtract b, add the _____ of b.

Example 5 Subtraction with Real Numbers

Subtract

a. $18 - 13$

b. $-18 - 13$

c. $14 - (-6)$

d. $8 - 12 - 21$

e. $\frac{1}{10} + \frac{3}{5} - \frac{7}{10}$

f. $8.2 - 3.1 - 0.6$

Solution

Exercises

Subtract.

10. $12 - 15$

11. $-4 - (-8)$

12. $(-9) - (-9)$

13. $0 - (-12)$

14. $-\frac{4}{13} - \frac{3}{13}$

15. $\frac{3}{5} - \frac{9}{5}$

Multiplication with Real Numbers

Rules for Multiplying Positive and Negative Real Numbers

For positive real numbers a and b,

1. The product of two positive numbers is _____.

2. The product of two negative numbers is _____ .

3. The product of a positive number and a negative number is _____

Example 7 Multiplication with Positive and Negative Real Numbers

Multiply.

a. $8(-5)$

b. $-6\left(\frac{1}{2}\right)$

c. $9(-4)(2)$

d. $-3(-4)$

e. $\left(-\frac{3}{4}\right)\left(-\frac{1}{2}\right)$

f. $(-2.1)(-0.03)$

Solution

Exercises

Multiply.

16. $(-8)(-7)$

17. $(-3)(17)$

18. $(12)\left(-\frac{5}{6}\right)$

19. $\frac{3}{8}\cdot\frac{5}{2}$

20. $-\frac{5}{16}\cdot\frac{3}{4}$

21. $6(5.3)$

22. $(-0.8)(4.9)$

The Area of a Rectangle

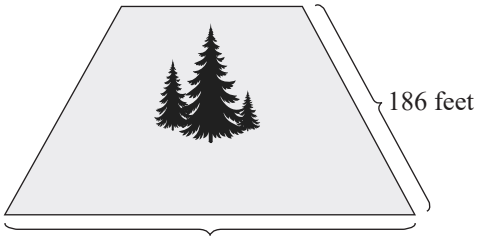
Area of a Rectangle

The **area** of a rectangle (measured in square units) is found by

_____ .

Example 8 Application: Calculating the Area of a Rectangle

Calculate the area of a rectangular plot of land with dimensions 186 feet by 92 feet.

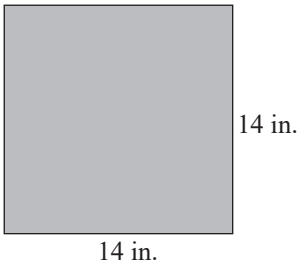


Solution

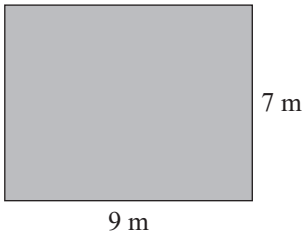
Exercises

Calculate the area of each geometric figure.

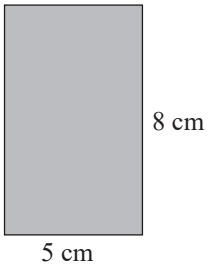
23. Find the area of a square with side length 14 in.



24. Find the area of a rectangle with dimensions 7 m by 9 m.



25. Find the area of a rectangle with dimensions 8 cm by 5 cm.



Division with Real Numbers

Rules for Dividing Positive and Negative Real Numbers

For positive real numbers a and b,

1. The product of two positive numbers is _____

2. The product of two negative numbers is _____

3. The quotient of a positive number and a negative number is _____

Example 9 Division with Positive and Negative Real Numbers

Divide.

a. $\frac{30.6}{-2}$ **b.** $\frac{-18}{-6}$ **c.** $-\frac{51}{3}$

Solution

Exercises

Divide.

26. $(-20) \div (-10)$

27. $\frac{-39}{-13}$

28. $\frac{-91}{-7}$

29. $\frac{52}{13}$

30. $60 \div (-15)$

31. $\frac{28.7}{-7}$

32. $-68.05 \div 5$

33. $-88.64 \div (-8)$

34. $-6.084 \div (-9)$