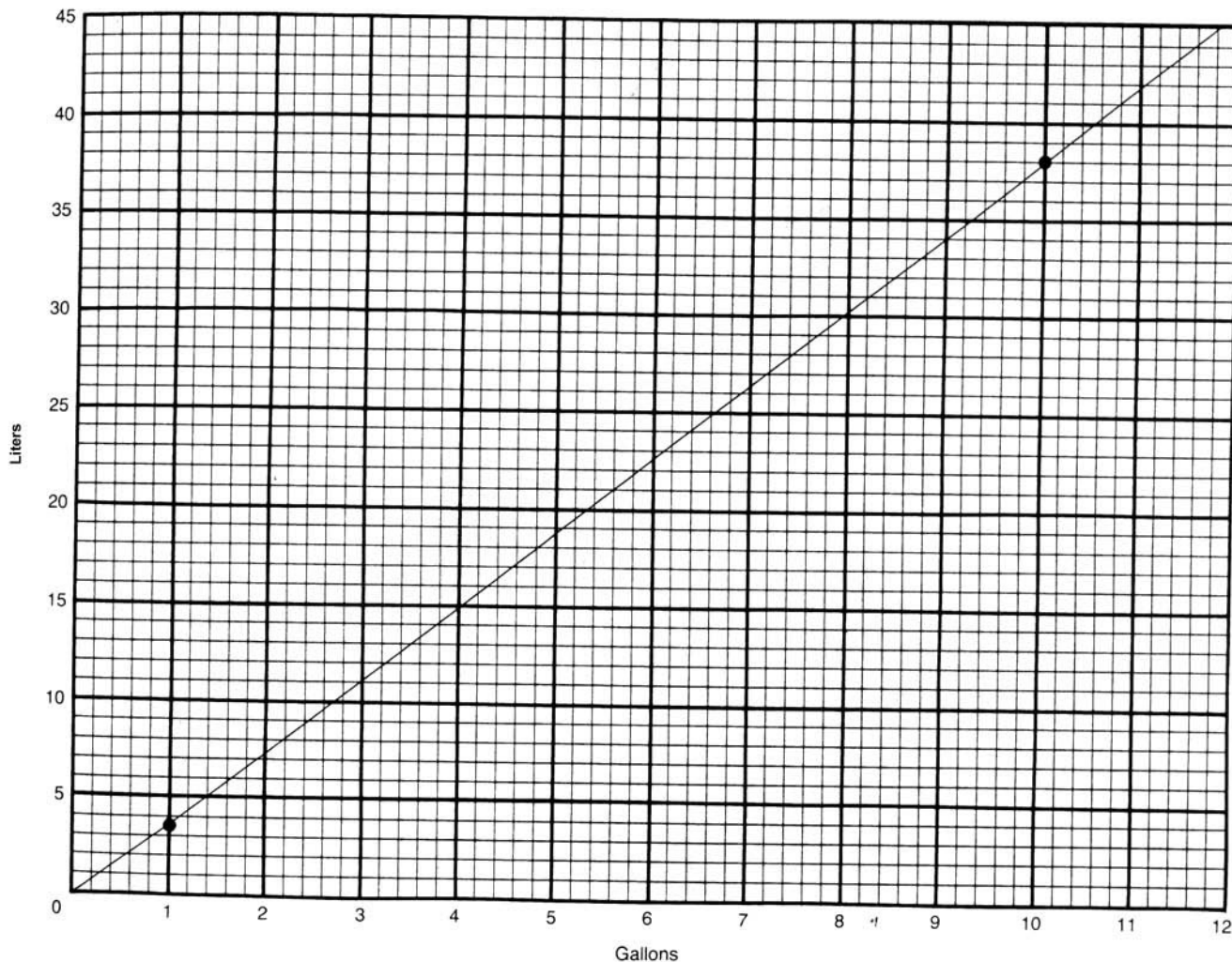


Worksheet 2.15

The graph below represents a conversion chart that can be used to convert gallons to liters or liters to gallons. We know that 1 gallon = 3.8 liters, and 10 gallons = 38 liters. The line was made by connecting the two points (1,3.8) and (10,38).

Notice that on the vertical scale for liters each line represents 1 liter, whereas on the horizontal scale for gallons each line represents $\frac{1}{5}$, or 0.2, gallon. These scales were used to make the graph easier to read.



Use the graph to find the following conversions:

1. 11 gallons = _____ liters
2. 6 gallons = _____ liters
3. 2 gallons = _____ liters
4. 5 gallons = _____ liters
5. 19 liters = _____ gallons
6. 26 liters = _____ gallons
7. 30 liters = _____ gallons
8. 42 liters = _____ gallons

(continued)

To find the area of the shape in Figure 4.26, cover part of it with squares and half squares. The area of the rest can be figured out by completing the rectangle around the remaining triangle. The problem is worked out step by step.

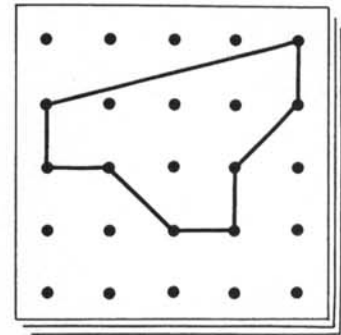


Figure 4.26

Step 1: Fit whole squares (marked by Xs) into the shape. There are 4 whole squares.

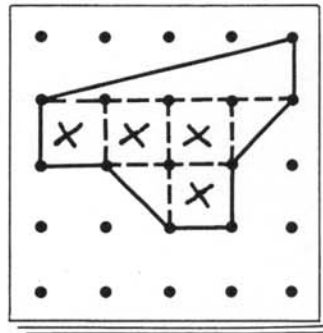


Figure 4.27

Step 2: Place half squares in the shape. There are 2 half squares.

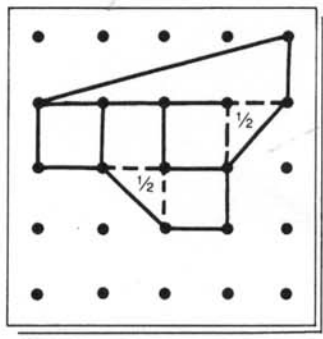


Figure 4.28

Step 3: The remaining area can be measured by completing the rectangle. The whole rectangle measures 4 square units; therefore, the triangle measures 2 square units.

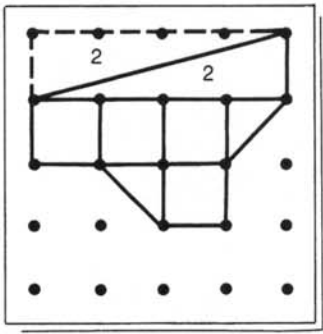


Figure 4.29

Step 4: The shape has a total area of 7 square units: 4 whole squares, 2 half squares, and a triangle that measures 2 square units.

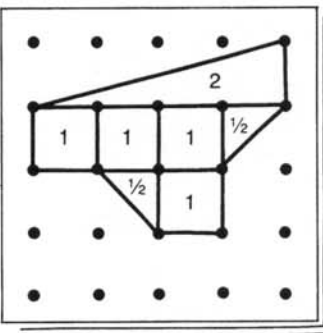


Figure 4.30

Worksheet 4.14

Find the areas of the following shapes. Work them out on a geoboard, and record the areas under each shape.

<p>1.</p>	<p>2.</p>	<p>3.</p>
<p>4.</p>	<p>5.</p>	<p>6.</p>
<p>7.</p>	<p>8.</p>	<p>9.</p>

You will find the methods we've been using to find area don't work for the triangle in Figure 4.31. Whole squares and half squares don't fit. There are no right angles to help in making rectangles. We need to learn one more method—called the *subtractive method*—to help us measure this area.

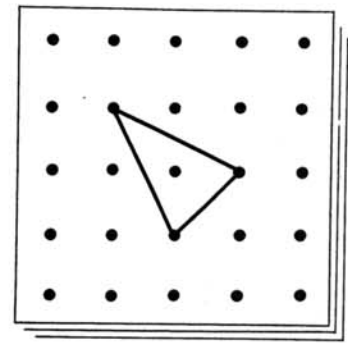


Figure 4.31

Step 1: Make a rectangle or square around the triangle. The square measures 4 square units. If we can find the area of the shaded parts and subtract that from 4 (the area of the square), we will have the area of the triangle.

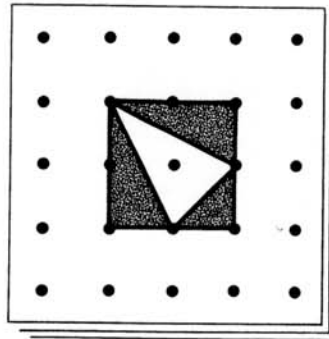


Figure 4.32

Step 2: One half square fits into the bottom corner. That leaves two right triangles.

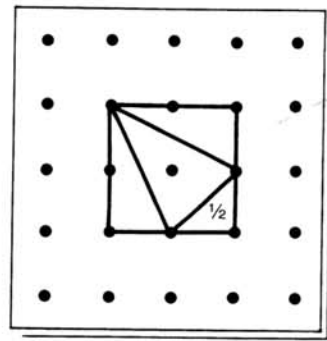


Figure 4.33

Step 3: Make rectangles around the right triangles. These rectangles each have an area of 2 square units; therefore, these triangles each have an area of 1 square unit.

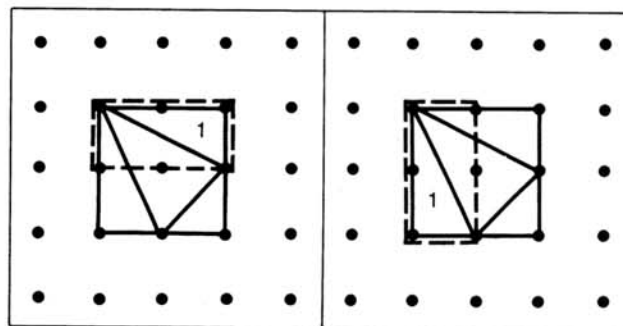


Figure 4.34

Step 4: We have two right triangles, each with an area of 1 square unit. We also know that there is a half square unit in the corner. This makes a total area of $2\frac{1}{2}$ square units that are inside the square but outside the original triangle. Subtract this $2\frac{1}{2}$ from 4. The area of the original triangle is $1\frac{1}{2}$ square units.

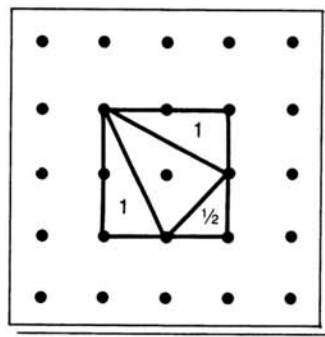


Figure 4.35

Worksheet 5.2

Draw pictures to help you solve these problems.

1. If $\frac{5}{6}$ bag of potting soil weighs 10 pounds, how much does the whole bag weigh?

2. After 18 walnuts were used to bake some brownies, $\frac{3}{4}$ package was left. About how many walnuts does the package hold?

3. The pickle barrel was $\frac{2}{3}$ full. After 23 pickles were sold, it was $\frac{1}{3}$ full. About how many pickles does the barrel hold?

4. If $1\frac{1}{2}$ pounds of nails cost \$1.74, how much does 1 pound cost?

5. Alice bought a pair of cross-country skis for \$90 at a $\frac{1}{4}$ -off sale. What was the original price?

Worksheet 5.3

Solve these problems, drawing a picture for each one. Use a calculator if you wish.

1. A board 21 feet long is cut into two pieces. One piece is 5 feet longer than the other. How long is each piece?

2. A certain number is 6 more than another number. Their sum is 42. Find the numbers.

3. A certain number is 6 times as big as another number. Their sum is 42. Find the numbers.

4. A notebook costs \$1.50 more than a pencil. Together they cost \$2.10. How much does the pencil cost?

(continued)

Worksheet 5.4

Solve these problems. Use a calculator if you wish.

1. Two numbers differ by 5. (This means that one number is 5 more than the other.) Their sum is 55.

a. Draw and label a picture to represent this information.

b. Find the two numbers.

2. The sum of two numbers is 55. The smaller number divides the larger evenly, with an answer (quotient) of 10. (In other words, the larger number is 10 times as big as the smaller.)

a. Draw and label a picture to represent this information.

b. Find the two numbers.

3. The Lopez family lives on a triangular plot of land with a perimeter of 180 feet. The first side of their lot is 10 feet *shorter* than the second side. The third side is 10 feet *longer* than the second side.

a. Which side is the shortest?

b. How much longer is the third side than the first?

c. Draw a picture to represent the information in this problem.

d. Find the length of each side of the lot.

4. Two times a number is 4 less than 20.

a. If we use a box to represent the number in this problem, why do we need to add four circles to the picture to make the total equal to 20?



b. What is the number?

(continued)

Worksheet 5.6

Solve these problems.

- 1.** Sue's age is 5 years *less than* Ann's age.
 - a.** If Sue is 35, how old is Ann?
 - b.** If Sue is 15, how old is Ann?
 - c.** If Sue is 42, how old is Ann?
 - d.** If Ann is 36, how old is Sue?

- 2.** Paul's income is \$2,500 *less than* Mary's income.
 - a.** If Paul makes \$8,000, how much does Mary earn?
 - b.** If Paul makes \$20,000, how much does Mary make?
 - c.** If Paul makes \$13,500, what is Mary's salary?
 - d.** If Mary makes \$25,000, what does Paul earn?

- 3.** Diane's income is \$2,000 *less than* Ted's.
 - a.** If Diane earns \$17,000, how much does Ted earn?
 - b.** If Diane earns \$32,000, how much is Ted's income?
 - c.** If Ted's income is \$13,000, how much is Diane's?

- 4.** Bill's income today is \$3,000 *more than* it was two years ago.
 - a.** If he makes \$27,000 now, what did he make then?
 - b.** If he makes \$19,000 now, what did he make then?
 - c.** If he made \$15,000 two years ago, what does he make now?
 - d.** If he made \$32,000 two years ago, what does he make now?

- 5.** Angela's age is three times *more than* Robert's age.
 - a.** If Robert is 17, how old is Angela?
 - b.** If Robert is 25, how old is Angela?
 - c.** If Angela is 24, how old is Robert?
 - d.** If Angela is 48, how old is Robert?

- 6.** Peter's salary is exactly *half* of David's.
 - a.** If Peter earns \$800, how much does David earn?
 - b.** If Peter earns \$1,200, how much does David earn?
 - c.** If David earns \$14,000, how much does Peter earn?
 - d.** If David earns \$20,000, how much does Peter earn?