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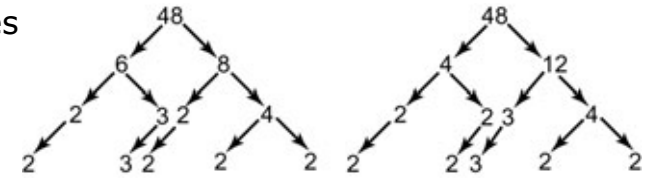
BLM 3–2

Factors

Factors are numbers that are multiplied to produce a specific product. For example, 2 and 5 are factors of 10, since 2 × 5 = 10.

You can use a factor tree to write a **composite number** as the product of its prime factors. Different factor trees are possible for many composite numbers. It depends upon which factor pair you start with. Here are two possible factor trees for the number 48.

A composite number has factors other than 1 and itself.



Therefore, 48 can be expressed as a product of its **prime factors**. 48 is 2 × 2 × 2 × 2 × 3.

The factor pairs of 48 are
1 and 48 2 and 24 3 and 16
4 and 12 6 and 8

A prime number has only two different factors, 1 and itself.

1. a) Use a factor tree to write 60 as a product of prime factors.

b) Make a factor tree for 60 that begins with a different factor pair.

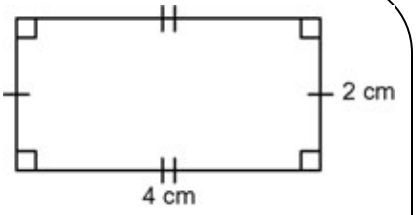
c) List the factor pairs of 60.

2. List the factor pairs of 12. Show your thinking.

Perimeter and Area

The **perimeter** of a polygon is a measure of the distance around the geometric shape.
The **area** of an object is a measure of how much space a two-dimensional surface covers.

Find the perimeter and area of the rectangle shown.



$P = 2l + 2w$
$P = 2 \times 4 + 2 \times 2$
$P = 8 + 4$
$P = 12$

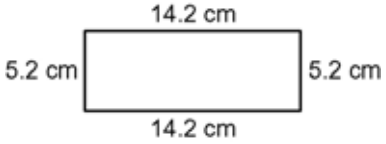
The perimeter is 12 cm.

$A = lw$
$A = 4 \times 2$
$A = 8$

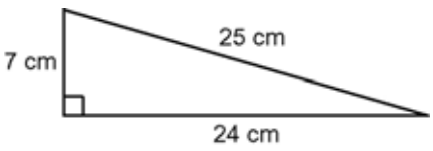
The area is 8 cm².

3. Find the perimeter of each of the following polygons.

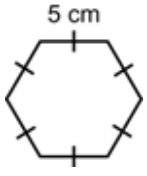
a)



b)



c)



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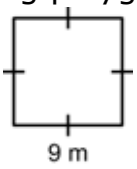
(continued)

4. What is the area of each of the following polygons?

a)

b)



Numbers Between

The whole numbers between 9 and 16 are 10, 11, 12, 13, 14, 15.
The difference between 9 and 16 is 7. $16 - 9 = 7$
Half of this difference is 3.5. $7 \div 2 = 3.5$
The number 12.5 is halfway between 9 and 16. $9 + 3.5 = 12.5$

5. List the whole numbers between
a) 4 and 9 **b)** 25 and 36

6. What number is halfway between each of the numbers in #5?

7. Is the number in the box closer to the number on the left or the number on the right? Show how you know.
a) 49 $\boxed{54}$ 64
b) 81 $\boxed{91}$ 100
c) 121 $\boxed{132}$ 144

Solving Equations

An **equation** contains a variable, or unknown value. Simple algebraic equations can be solved using mental math. This method of solving is known as inspection.

$x + 5 = 8$
$x = 3$

To solve an equation, isolate the variable on one side of the equal sign. When undoing the operations performed on the variable, follow the reverse order of operations:

- subtract and add
- multiply and divide

$5x + 7 = 22$
$5x + 7 - 7 = 22 - 7$ Reverse the addition of 7 by subtracting 7.
$5x = 15$
$\frac{5x}{5} = \frac{15}{5}$ Reverse the multiplication of the variable with 5 by dividing by 5.
$x = 3$

8. Solve by inspection.
a) $x + 4 = 11$ **b)** $2x = 32$

9. Solve for x.
a) $3x = 18$ **b)** $4x + 1 = 13$