## Mid-Chapter Review

## Frequently Asked Questions



Q: What is the formula for the area of a parallelogram?
A: The formula for the area of any parallelogram is $A=b \times h$, which means the base times the height.

This is because the area of a parallelogram is the same as the area of a rectangle with the same height (length) and base (width).


Q: When calculating the area of a parallelogram, which measurements do you use for the base and the height?

A: You can use any side of a parallelogram as the base. The height depends on which side you use as the base. The height can be drawn anywhere between the parallel sides, but it must be perpendicular to the base. The parallelogram on the left can be turned. Its area does not change, but what we call the base and the height do change.


Q: What is the formula for the area of a triangle?
A: The formula for the area of any triangle is $A=(b \times h) \div 2$, which means the base times the height, divided by 2 . The area of a triangle is half the area of a parallelogram with the same base and height.

The area of the green triangle is half the area
 of the blue and green parallelogram.

Q: When using the formula for the area of a triangle, which side do you use as the base?
A: You can use any side of a triangle as the base. The height depends on which side you use as the base. The height intersects the base at a $90^{\circ}$ angle and reaches to the opposite vertex. Sometimes the height is outside the triangle.


Q: How can you calculate the area of a triangle shown on a geoboard?

A1: You can use a formula. For this triangle, the base is 4 units and the height is 3 units. Area $=4 \times 3 \div 2$, or 6 square units.

A2: You can subtract the area of the other shapes from the area of the rectangle around the triangle. For this triangle, the whole area is $4 \times 4=16$ square units. The areas of the other shapes are


- small rectangle, 4 square units
- small triangle on the left, $2 \times 3 \div 2=3$ square units
- small triangle on the right, $2 \times 3 \div 2=3$ square units

Area of yellow triangle is $16-(4+3+3)=6$ square units.

## Q: What is the formula for the area of a trapezoid?

A: The formula for the area of any trapezoid is $A=(a+b) \times h \div 2$, which means the sum of bases $a$ and $b$ times the height, divided by 2 .
The area of the blue trapezoid is half the area of the blue and purple parallelogram.


## Practice Questions

(5.1)

1. Braydon is creating an obstacle course in the shape of a parallelogram for his dog. The parallelogram will cover an area of $48 \mathrm{~m}^{2}$. Its base and height must be whole numbers of metres. Draw and label the perimeter that gives the longest obstacle course.
(5.2)
2. Copy and complete the table.
a)

| Shape | Height | Base | Area |
| :--- | :---: | :---: | :---: |
| triangle | $\square \mathrm{cm}$ | 3 cm | $21 \mathrm{~cm}^{2}$ |
| parallelogram | 5.0 km | 1.4 km | $\square \mathrm{~km}^{2}$ |
| triangle | 3.20 cm | $\square \mathrm{~cm}$ | $7.84 \mathrm{~cm}^{2}$ |
| parallelogram | $\square \mathrm{mm}$ | 15.2 mm | $30.4 \mathrm{~mm}^{2}$ |

(5.4) 3. Calculate the area of each shape.
a)

b)

c)

4. Use any method to calculate the area of each shape.
a)

d)

b)

e)

c)

f)

5. Draw each shape on centimetre grid paper.
a) a triangle with an area of $27 \mathrm{~cm}^{2}$
b) a parallelogram with an area of $64 \mathrm{~mm}^{2}$
c) a trapezoid with an area of $16 \mathrm{~cm}^{2}$
d) a trapezoid with an area of $21 \mathrm{~cm}^{2}$
6. The following diagram shows Meagan's lawn, which she plans to re-sod. The price of sod is $\$ 12$ per square metre. How much will it cost Meagan to re-sod her lawn? (5.4)


