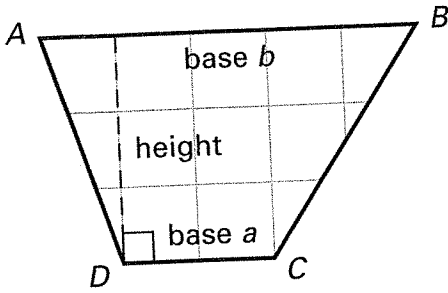
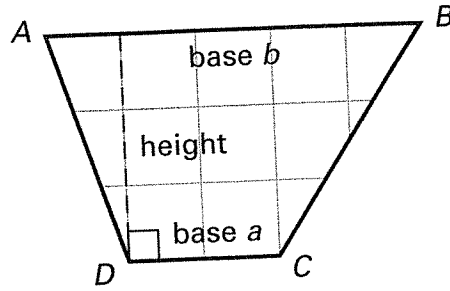


You will need this for finding
The Area of A Trapezoid
5.4

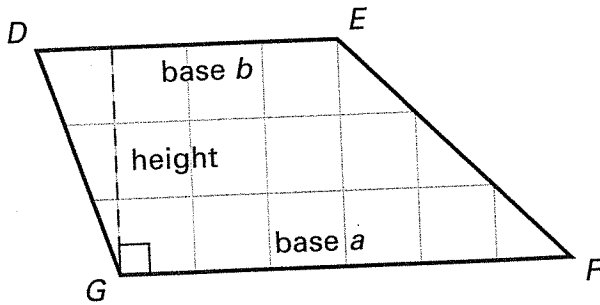
Trapezoid ABCD



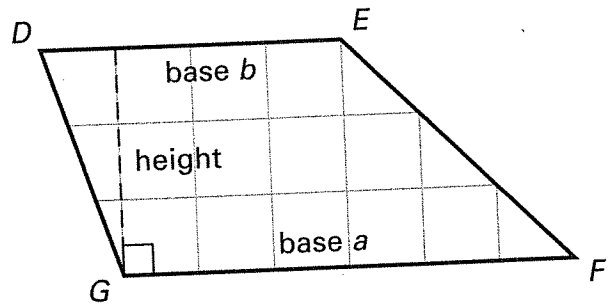
Trapezoid ABCD



Trapezoid DEFG



Trapezoid DEFG



5.4

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Area of a Trapezoid

You will need

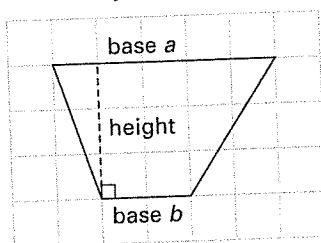
- Cutout Page 5.4
- scissors
- tape
- a ruler
- a calculator



► **GOAL** Develop and use the formula for the area of a trapezoid.

Use these steps to find the area of a trapezoid.

Step 1: Count the grid squares and estimate the area of the trapezoid below.

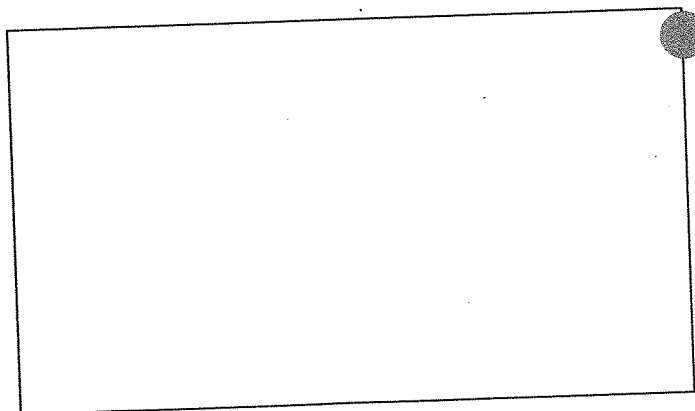
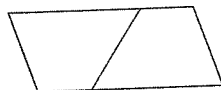


Each square on the grid represents 1 cm^2 .

Area = about _____ cm^2

Step 2: Cut out both copies of Trapezoid $ABCD$ from Cutout Page 5.4.

Arrange the two trapezoids in the box below to form a parallelogram. Tape them to the page.



Parallelogram

base = _____ cm + _____ cm

= _____ cm

height = _____ cm

Area = _____ cm \times _____ cm

= _____ cm^2

Step 3: How much of the parallelogram does one trapezoid take up? Circle one.

$\frac{1}{2}$

$\frac{1}{4}$

$\frac{1}{3}$

Use the area of the parallelogram to calculate the area of one trapezoid.

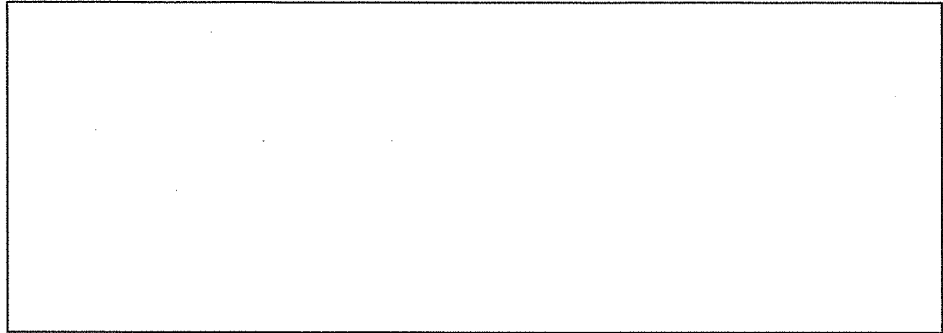
Area of Trapezoid $ABCD$ = _____ \div _____

= _____ cm^2

Use these steps to develop the formula for the area of a trapezoid.

Step 1: Cut out both copies of Trapezoid *DEFG* from Cutout Page 5.4.

Arrange the two trapezoids in the box below to form a parallelogram. Tape them to the page.



Parallelogram

base = _____ cm + _____ cm

= _____ cm

height = _____ cm

Area = _____ cm × _____ cm

= _____ cm²

Trapezoid *DEFG*

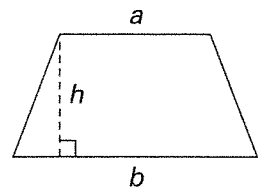
Area = _____ ÷ _____

= _____ cm²

Step 2: Write out the steps that you used to calculate the area of the trapezoid.

1. Add the _____.
2. Multiply by the _____.
3. Divide by _____.

Step 3: Complete the formula for the area of a trapezoid. Use the letters *a*, *b*, and *h* to represent base *a*, base *b*, and the height *h*.



Area = (_____ + _____) × _____ ÷ _____

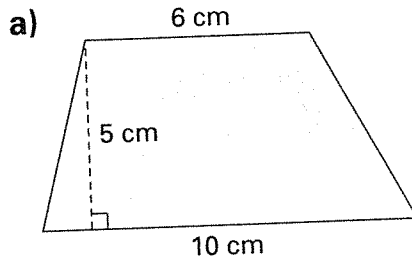
Reflecting

- Why can a trapezoid always be thought of as half of a parallelogram?

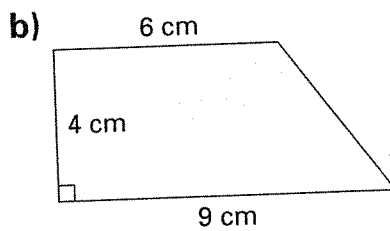
Practising

Text page 164

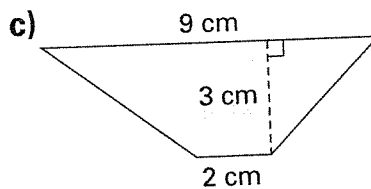
6. Calculate the area of each trapezoid using a formula.



$$\text{Area} = (a + b) \times h \div 2$$

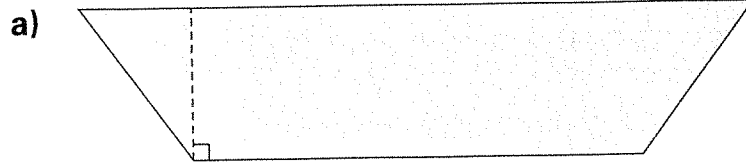


$$\text{Area} =$$

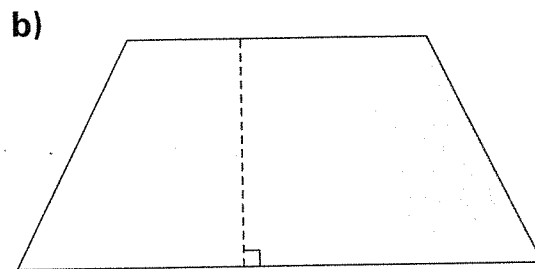


$$\text{Area} =$$

9. Measure the trapezoids and calculate their areas.



Area =



Area =

10. Circle the calculation you could use to find the area of the trapezoid below.

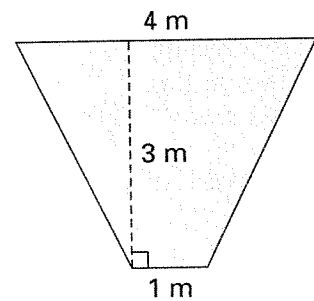
a) Area = $(3\text{ m} + 1\text{ m}) \times 4\text{ m} \div 2$

b) Area = $1\text{ m} + (4\text{ m} + 3\text{ m}) \div 2$

c) Area = $(4\text{ m} + 1\text{ m}) \times 3\text{ m} \div 2$

d) Area = $(1\text{ m} + 3\text{ m}) \times 4\text{ m} \div 2$

e) Area = $(4\text{ m} + 3\text{ m}) \times 1\text{ m} \div 2$



How do you know?
