Mental Math

03:00

Work out

- $\frac{1}{2} \times 2 \times 3 + \frac{1}{2} \times 4 \times 3$

- $5 \times 6 - \frac{1}{2} \times 4 \times 3$

- $\frac{1}{2} \times 7 \times 4 - \frac{1}{2} \times 1 \times 8$

Starter

The diagram shows a 6-sided shape made from a rectangle and a right-angled triangle.

2 cm

Diagram **NOT** accurately drawn

05:00

7 cm

12 cm

6 cm

Work out the total area of the 6-sided shape.

Starter

The diagram shows a 6-sided shape made from a rectangle and a right-angled triangle.

2 cm

Diagram NOT accurately drawn

7 cm

12 cm

24

6 cm

5   15
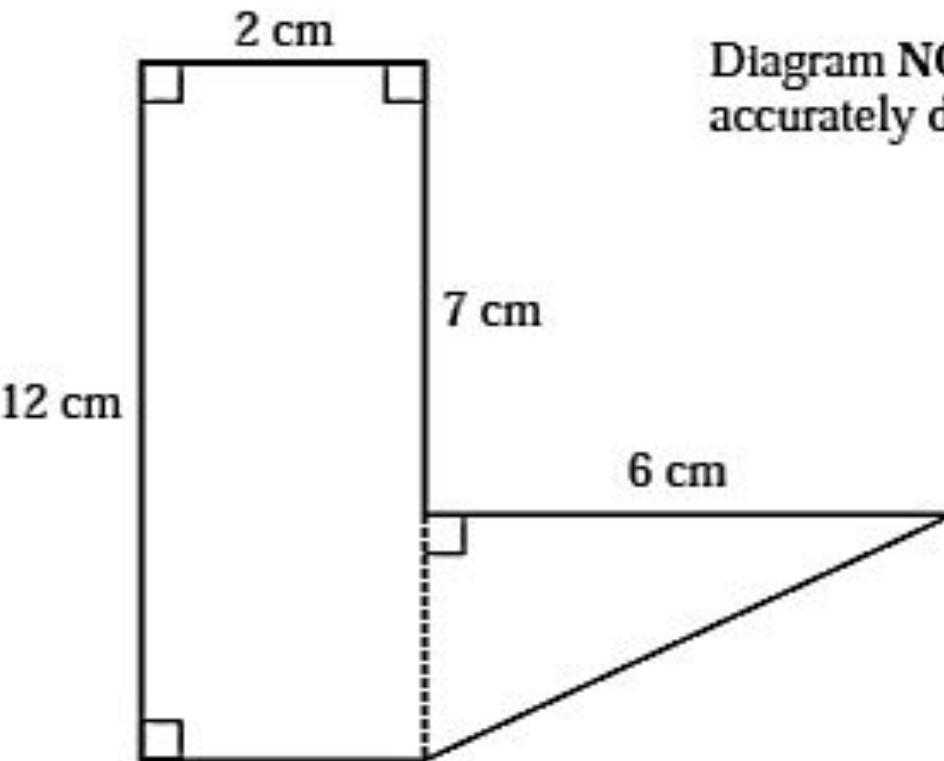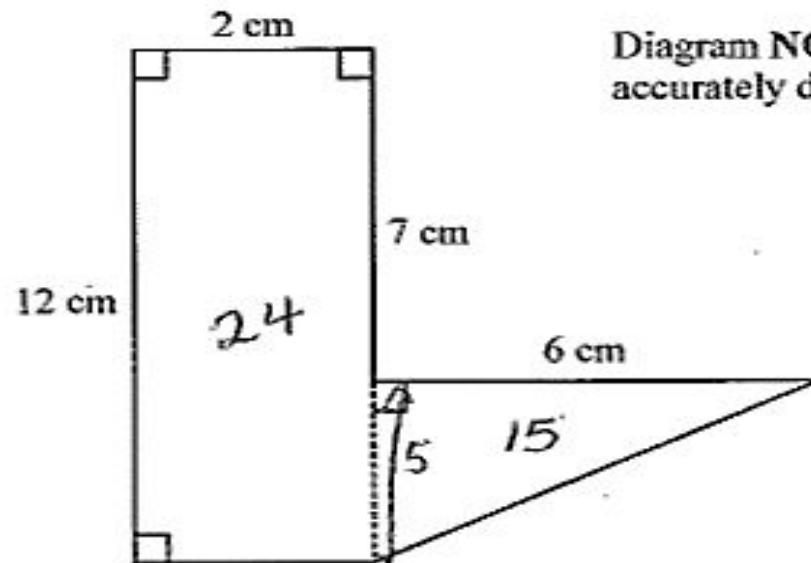
Work out the total area of the 6-sided shape.

$24 + 15 = 39$ cm^2

$2 \times 12 = 24$

$\frac{1}{2} \times 6 \times 5 = 15$

A ✓ understand that symbols may be used to represent numbers in equations or variables in expressions and formulae

C find the area of simple shapes using the formulae for the areas of triangles and rectangles

D use formulae from mathematics and other real-life contexts expressed initially in words or diagrammatic form and convert to letters and symbols

Key Concept
Mini-Plenary

03:00

How do I find the area of a triangle?

What is the area of the triangle with base 12cm and height 5cm?

How do I find area of a rectangle?

What is the possible values of length and width of a rectangle if the area is 40 cm^2?
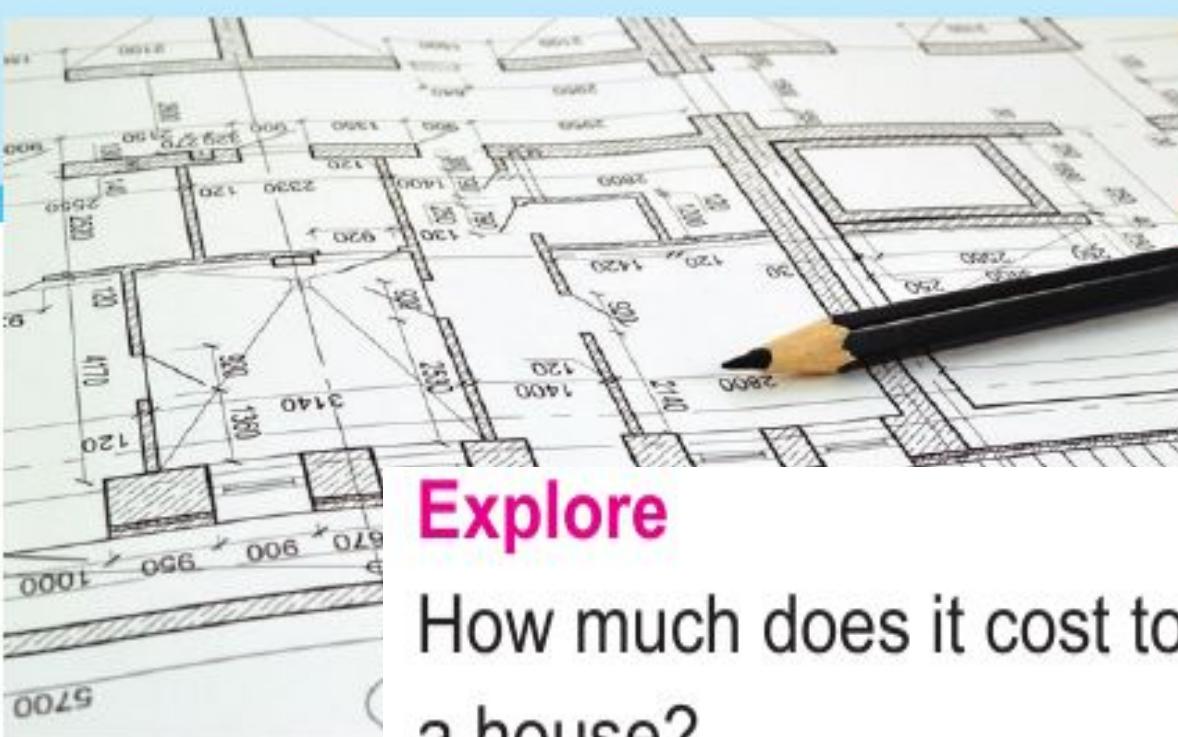
Explore

How much does it cost to paint the front of a house?

Why learn this?

Real estate agents need to calculate areas of floor plans when selling properties

My Turn

Area of Triangles and Composite Shapes

4 cm

5 cm

8 cm
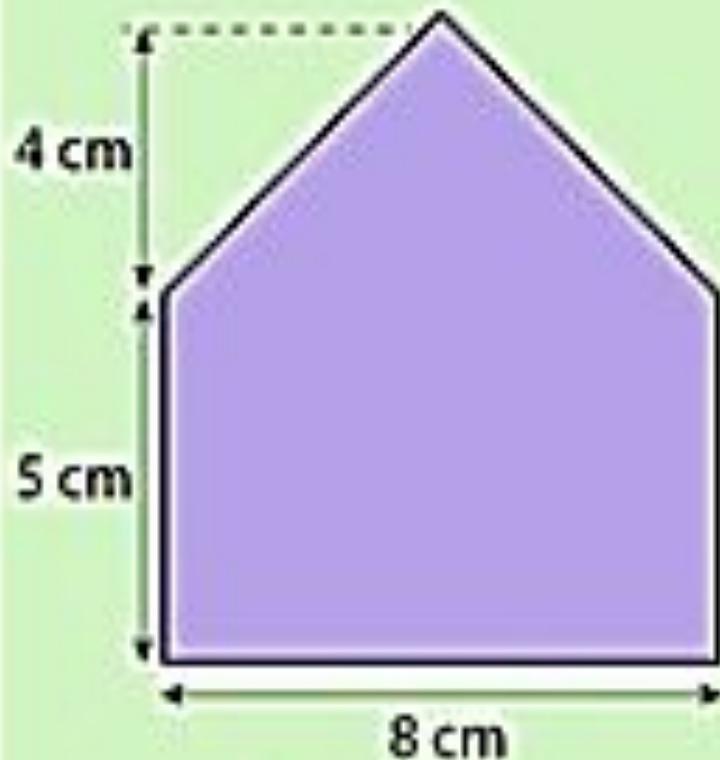
Pair Task

Show your work!

1. Find the area of the entire figure below.

4 cm

3 cm

3cm

2 cm

⊢2 cm⊣

20 cm
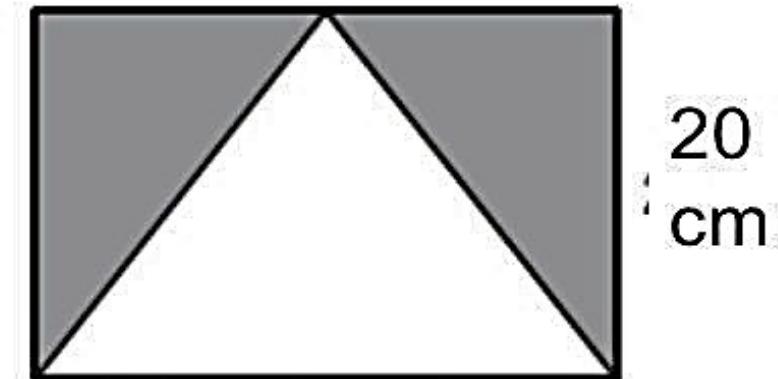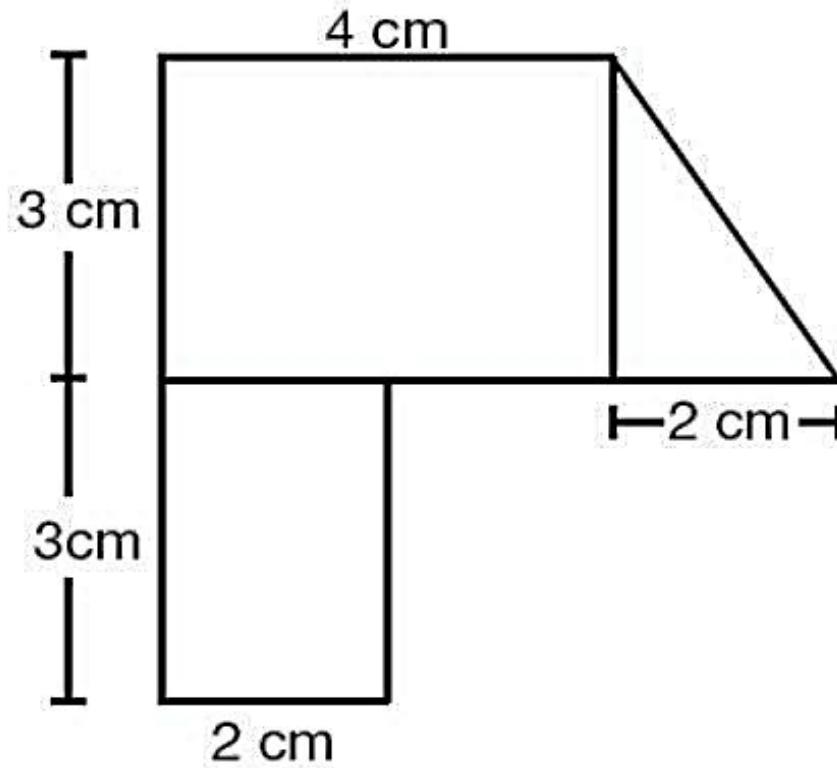
30 centimeters

2. Find the area of the shaded region above.

Extension

Task 1:

Calculate the area of the compound shapes below:

10:00

a
5 cm
$10cm^2$ | 2 cm
$20cm^2$ | 2 cm
10 cm
Total Area = $30cm^2$

b
8 cm
$32cm^2$ | 4 cm
6 cm
4 cm
$8cm^2$ | $2cm$
4 cm
Total Area = $40cm^2$

c
$3cm$
$21cm^2$ | $7cm$
10 cm
7 cm
$30cm^2$ | 3 cm
10 cm
Total Area = $51cm^2$

d
$2cm$
$10cm^2$ | 5 cm
3 cm
$25cm^2$ | 5 cm
5 cm
Total Area = $35cm^2$
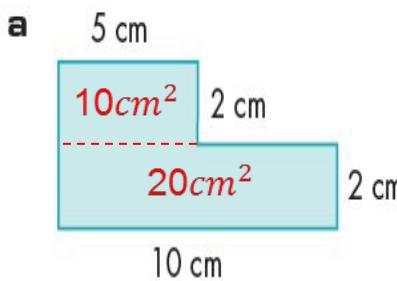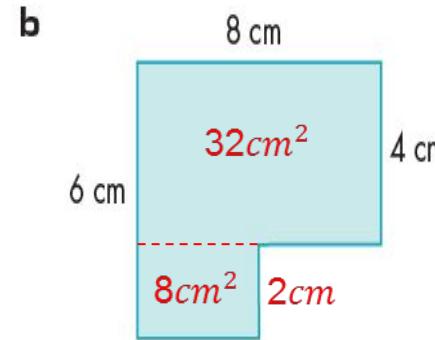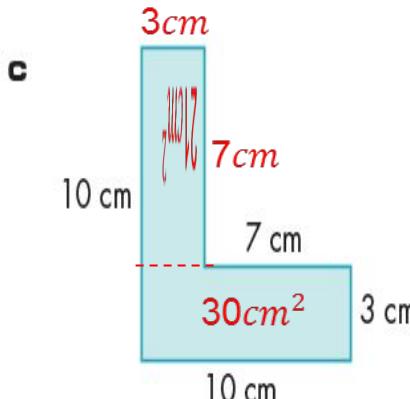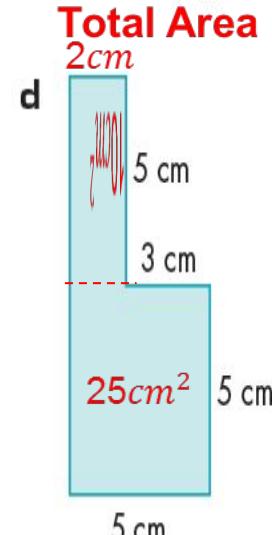
Calculate the area of the compound shapes below: Area of a triangle = $\frac{base \times height}{2}$
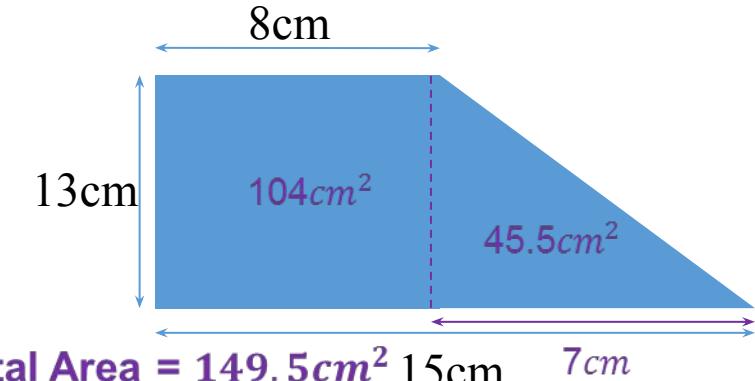
(a)
8cm
13cm | $104cm^2$
$45.5cm^2$
15cm | 7cm
Total Area = $149.5cm^2$

(b)
15cm 7cm
11cm | $88cm^2$ | 14cm
8cm
20cm | $140cm^2$
9cm
6cm
$9cm^2$
18cm | 3cm
Total Area = $237cm^2$
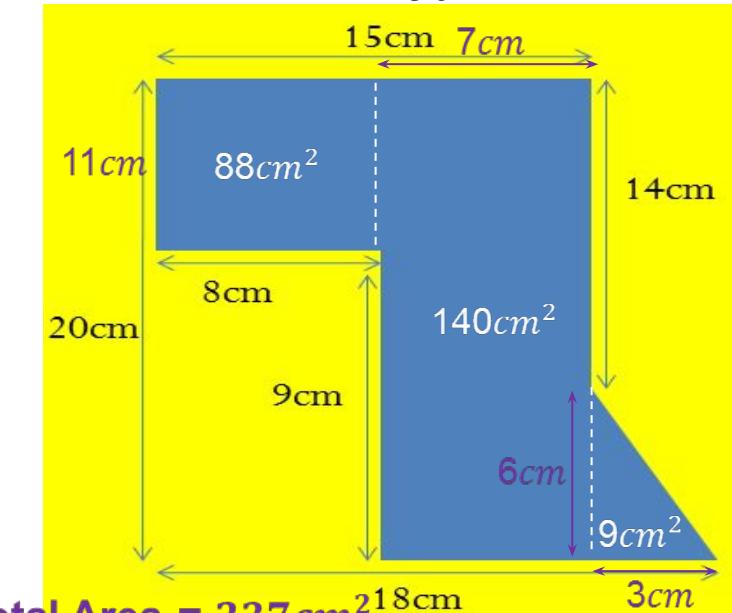
Task 2:

10:00

CHALLENGE

Real Sam makes stained glass windows like this.

a What is the area of the window?
    Give your answer in square metres.

The stained glass costs £153 per square metre.

b What is the cost of the glass for this window?

0.5 m

1.5 m

1.2 m
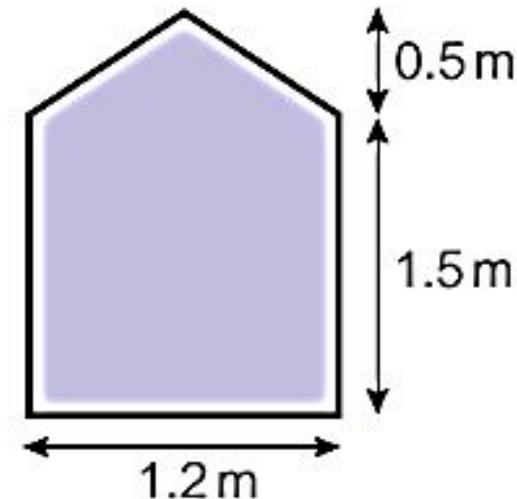
Work out the area of each compound shape.

a
5 cm
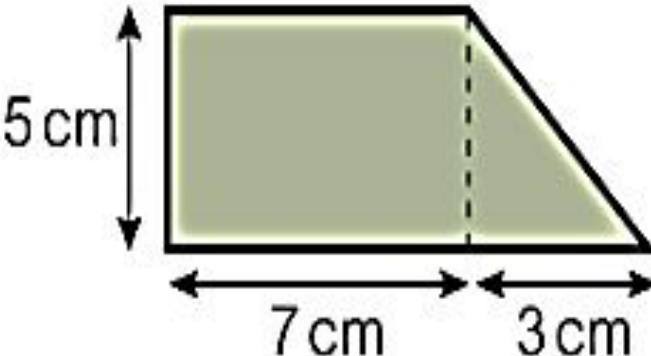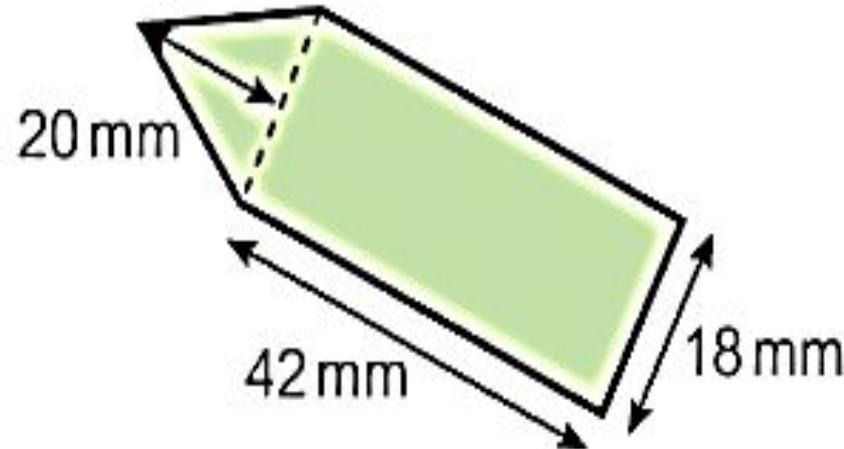
7 cm   3 cm

b
20 mm

42 mm   18 mm

A ✓ understand that symbols may be used to represent numbers in equations or variables in expressions and formulae

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D ✓ use formulae from mathematics and other real-life contexts expressed initially in words or diagrammatic form and convert to letters and symbols

PLENARY – SPOT THE MISTAKE

03:00

Harold finds the area of the compound shape below:

10 cm

A

4 cm

8 cm

4cm   B

5 cm
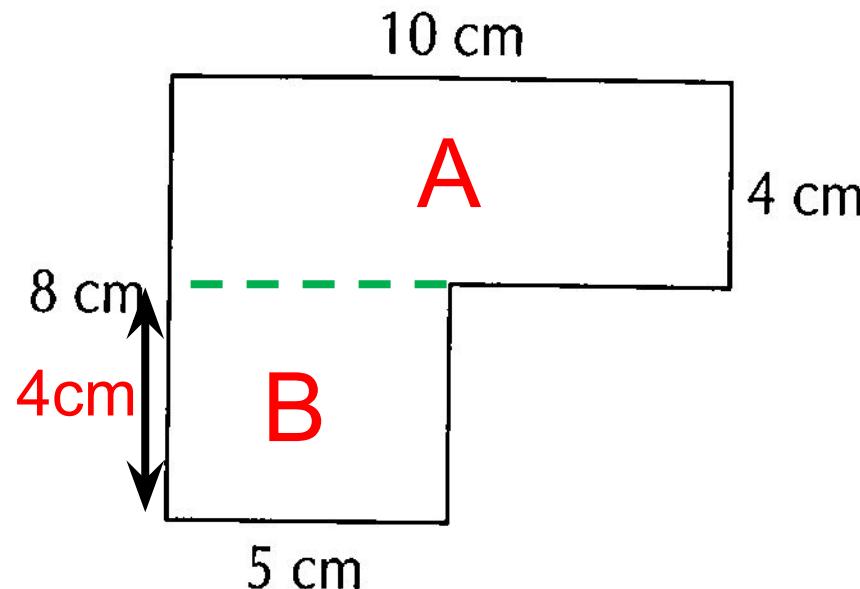
This is his working:

Area = 10 x 4 + 8 x 5
= 40 + 40
= 80 cm^2

a   Explain why he is wrong.

b   Calculate the correct answer.

Area of compound shape = Area of A + Area of B

Area of compound shape = 10 x 4 + 4 x 5

Area of compound shape = 40 + 20

Area of compound shape = 60cm^2