Tile the Town, Tiny!

You need ☑ scissors ☑ a calculator ☑ large sheets of paper
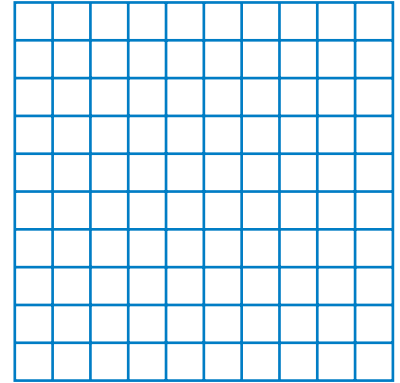☑ a 100-tile square (see copymaster) ☑ place value blocks (optional)

Activity

Tiny Tim is a tiler. He puts special tiles on kitchen and bathroom walls.

Tiny Tim's tiles are very small, only 1 centimetre square, so he uses these pre-made strips and squares of tiles to make the job easier:
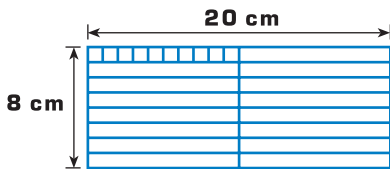
10-tile strip **100-tile square**

1. How many 100-tile squares make a 1 000-tile strip (10 tiles by 100 tiles)?

2. Tiny Tim has employed you as his apprentice. He explains how he uses the strips and the square to work out how many tiny tiles fill up a whole area.
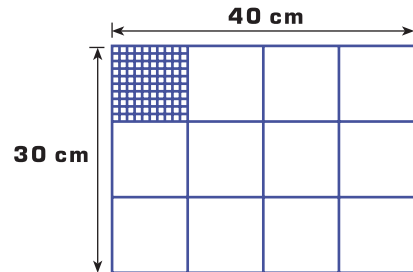
For the strips:

That's easy, 2 x 8 = 16.
16 tens is 160 tiny tiles.

20 cm
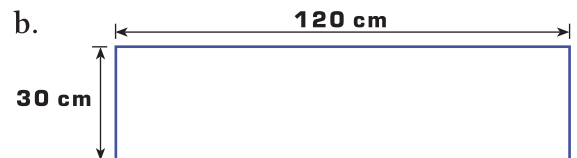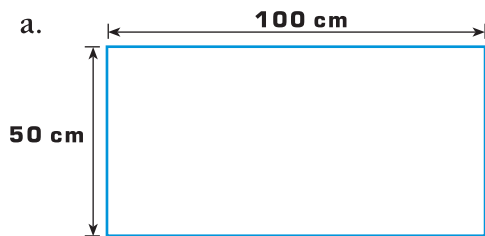8 cm

For the square:

This will take 40 x 30 tiny tiles.
4 x 3 = 12.
12 hundreds is 1 200.

40 cm
30 cm

Tiny Tim asks you to work out how many tiny tiles are needed for these areas:
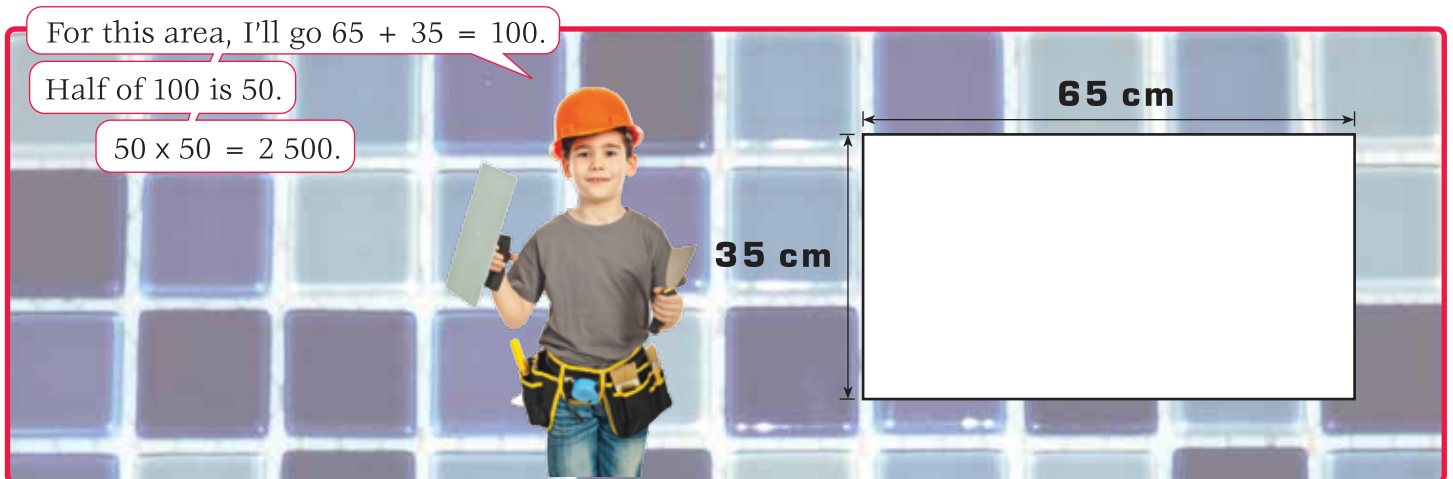
a.
100 cm
50 cm

b.
120 cm
30 cm

i. Make the two rectangles from paper, using the dimensions shown.

ii. Use your 10 cm by 10 cm (the 100-tile) square to find the area of each rectangle in tiny tiles.

iii. Record your answers for Tiny Tim to look at.

Estimating and calculating multiplication using multiples of 10

3. How many tiny tiles would Tiny Tim need to fill these areas?

a. 4 cm by 60 cm   b. 80 cm by 50 cm

c. 400 cm by 60 cm   d. 300 cm by 70 cm

4. Now Tiny Tim shows you two ways to estimate the number of tiny tiles he needs.

I'll round this area to 70 x 40 = 2 800.

69 cm

41 cm

For this area, I'll go 65 + 35 = 100.

Half of 100 is 50.

50 x 50 = 2 500.

65 cm

35 cm

Estimate the areas of these rectangles, using one of Tim's strategies:

i. 27 cm by 23 cm   ii. 45 cm by 75 cm

iii. 49 cm by 38 cm   iv. 13 cm by 62 cm

v. 34 cm by 46 cm   vi. 49 cm by 38 cm

vii. 189 cm by 22 cm   viii. 408 cm by 296 cm.

5. a. Use a calculator to check the accuracy of your estimates in question 4.

b. Were your estimates closest when:
rounding both numbers up, rounding both down, or rounding one up and
one down? Explain why.

c. Were the estimates you got from adding, halving, and squaring close
to the actual answer? Explain why or why not.