

Measurement applications: simple shapes



Solve real-world perimeter, area, and cost problems for rectangles, triangles, parallelograms, trapezia, and circles.

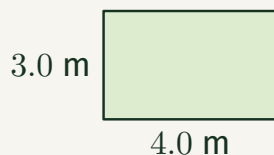
Name _____

Date _____

How to answer

Read each scenario carefully. Convert units where needed, show every step of your working, and give money answers to the nearest cent. Where a purchase must be made in whole items (tins, rolls, sheets, packs), round UP even if the exact amount is only a little over a whole number.

Worked example A rectangular patio measures 4.0 m by 3.0 m and needs a protective sealant. One tin of sealant covers 5 m² and costs \$38.



$$\text{Area} = 4.0 \times 3.0 = 12 \text{ m}^2.$$

Tins needed = $12 \div 5 = 2.4$, and only whole tins can be bought, so round UP = 3 tins.

$$\text{Total cost} = 3 \times \$38 = \$114.00.$$

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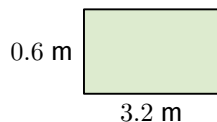


Question 1: tiling. Question 2: skate park edging.

Name _____

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Question 1



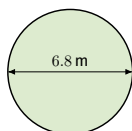
A kitchen splashback measures 3.2 m by 0.6 m and needs tiling. Tiles are sold in boxes that each cover 1 m^2 , at \$34.50 per box.

(a) Calculate the area of the splashback.

(b) Only whole boxes of tiles can be bought. How many boxes are needed?

(c) Calculate the total cost of the tiles.

Question 2



A circular skate park bowl has a diameter of 6.8 m. Edging piping is sold in 2 m lengths at \$28 each, and only whole lengths can be bought.

(a) Calculate the circumference of the bowl, correct to 2 decimal places.

(b) Determine how many 2 m lengths of piping are needed, and the total cost.

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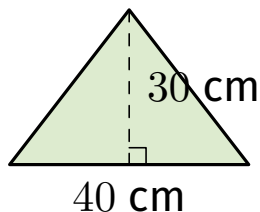
Question 3: bunting fabric.



Name _____

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Question 3



Bunting for a school fair is made from 15 identical triangular flags. Each flag has a base of 40 cm and a height of 30 cm. Fabric costs \$12 per m^2 .

(a) Convert the base and height of one flag to metres.

(b) Calculate the area of fabric needed for one flag.

(c) Calculate the total area of fabric needed for all 15 flags.

(d) Calculate the total cost of the fabric.

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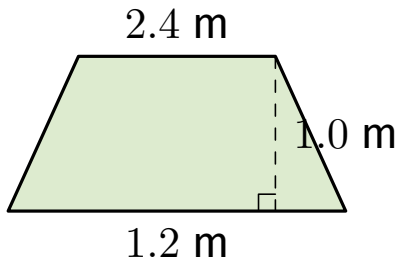


Question 4: building a raised garden bed.

Name _____

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Question 4



A trapezium-shaped raised garden bed has parallel sides of 2.4 m and 1.2 m, two equal 1.3 m sloped sides, and a perpendicular height of 1.0 m between the parallel sides. Timber edging costs \$19 per metre, and soil costs \$9.90 per bag, where each bag covers 0.3 m^2 of bed.

(a) Calculate the perimeter of the bed, and the cost of the timber edging.

(b) Calculate the area of the bed. Only whole bags of soil can be bought – how many bags are needed, and what is the soil cost?

(c) Find the total cost of the project.

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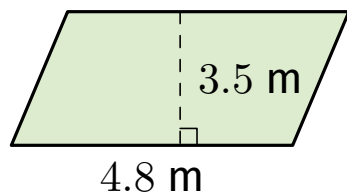


Question 5: comparing two paving quotes.

Name _____

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Question 5



A homeowner is choosing between two parallelogram-shaped paving quotes for the same courtyard section. **Quote A:** base 4.8 m, height 3.5 m, \$65 per m^2 , with free delivery on orders of \$1500 or more (otherwise a \$95 delivery fee). **Quote B:** base 5.0 m, height 3.2 m, \$95 per m^2 , with the same free-delivery rule.

(a) Calculate the area and the paving cost (before delivery) for each quote.

(b) Decide whether each quote qualifies for free delivery, then find the total cost of each.

(c) Which quote should the homeowner accept? Justify your decision.

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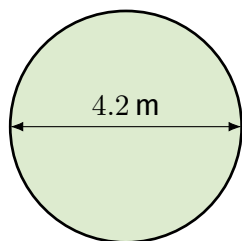


Question 6: trampoline on a budget.

Name _____

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Question 6



A family is choosing a trampoline within a \$900 budget. **Round option:** diameter 4.2 m, \$749, plus safety matting at \$19 per m^2 of footprint. **Rectangular option:** 3.6 m by 2.2 m, \$699, plus the same \$19 per m^2 matting.

(a) Calculate the area and total cost (trampoline plus matting) for each option.

(b) With a \$900 budget, which option(s) can the family afford?

(c) Which option should the family choose? Justify your decision, including any trade-off between budget and value for money.
