

COSY CARPETS

Introduction

This task is based on fitting different widths of carpet into a given room. It deals with practical aspects such as the measurements that would be needed in order to buy a carpet, the widths that carpets are made in and the different ways that carpets can fit a room when joins are needed. Subsequent work looks at the best design where there is a choice of carpet widths and whether features such as fitted cupboards affect the amount of carpet required.

The task could be introduced by looking at advertisements for carpets (and looking at the small print) or else considering how the classroom might be carpeted.



Curriculum coverage	Functional standards
<ul style="list-style-type: none"> ✓ Number and algebra ✓ Geometry and measures 	<ul style="list-style-type: none"> ✓ Representing <ul style="list-style-type: none"> ■ Recognise that a situation has aspects that can be represented using mathematics ✓ Analysing <ul style="list-style-type: none"> ■ Find results and solutions ✓ Interpreting <ul style="list-style-type: none"> ■ Interpret results and solutions ■ Draw conclusions in the light of the situation
Cross-Curricular Links	Every Child Matters
<ul style="list-style-type: none"> ✓ Citizenship <ul style="list-style-type: none"> ■ Environmental concern for wastage ✓ PSHE <ul style="list-style-type: none"> ■ The wiser consumer (finding economical solutions to a problem) ■ Financial awareness in relation to easy payment terms 	<ul style="list-style-type: none"> ✓ Social and economic well-being
Prior knowledge	Vocabulary
<ul style="list-style-type: none"> ✓ Four rules applied to money ✓ Four rules applied to decimals ✓ Percentage of a given quantity 	<ul style="list-style-type: none"> ✓ Metre, square metre ✓ Fitted carpet ✓ Underlay ✓ Deposit

Pre-release data sheet



COSY CARPETS

A superb range of carpets to enhance your home

*Wide range of fashionable colours,
all with stain resistant finish*

Top quality wool mixture carpets in four widths

	<i>Plain</i>	<i>Berber</i>	<i>Light Pattern</i>
2-metres wide	£17.99 per metre length	£19.95 per metre length	£21.99 per metre length
3-metres wide	£25.49 per metre length	£27.79 per metre length	£29.99 per metre length
4-metres wide	£32.99 per metre length	£34.99 per metre length	£36.49 per metre length
5-metres wide	£38.99 per metre length	not available	£44.99 per metre length

**Extend the life of your new carpet with our
keenly priced underlay**

Firmapad Underlay

Light or medium use **£3.95 per square metre**
Heavy domestic use **£4.95 per square metre**

Light use = bedroom, study
 Medium use = dining room
 Heavy domestic use = hall, stairs, living room

**We offer easy terms on all fitted carpets
 – only 5% down and up to 3 years to pay the balance –**

Data Sheet Practice

Questions

Students will need to use the data sheet for **Cosy Carpets** to answer these questions.

e **1** Pete’s bedroom is 3 metres wide and 2.5 metres long.

He wants to fit a plain carpet in the bedroom.

- a** What is the cost of 1 metre of 3-metre wide plain carpet?
- b** How much will it cost Pete to buy the carpet for the bedroom?
- c** Find the cost of underlay for Pete’s bedroom.

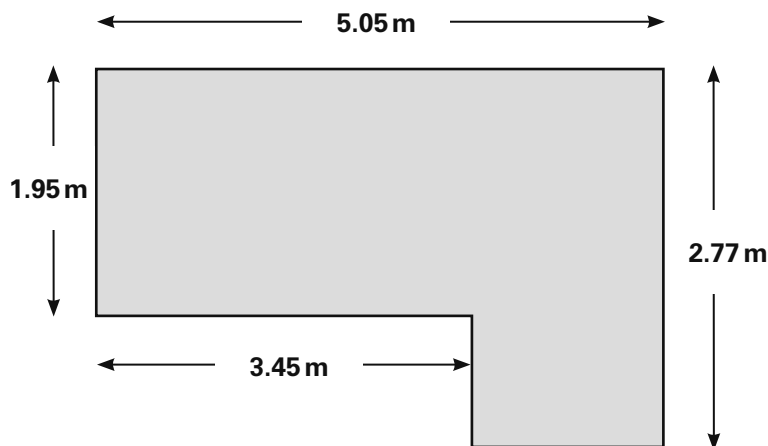
2 Mr Beckham buys fitted carpets for the hall, stairs and landing of his new house.

The bill is £985.17

He pays 5% deposit, followed by 24 monthly payments of £58.95

How much extra does he pay?

3 This is the floor plan of Melissa’s hall.



- a** Which width of carpet would be most suitable for this hall?
(You should assume that Melissa does not want any joins in the carpet)
- b** Find the cost of carpeting the hall with patterned carpet.
- c** Show that approximately 4 square metres of carpet will be wasted.

Answers

£25.49

£63.72

£29.62

£478.88

3-metre

£151.44

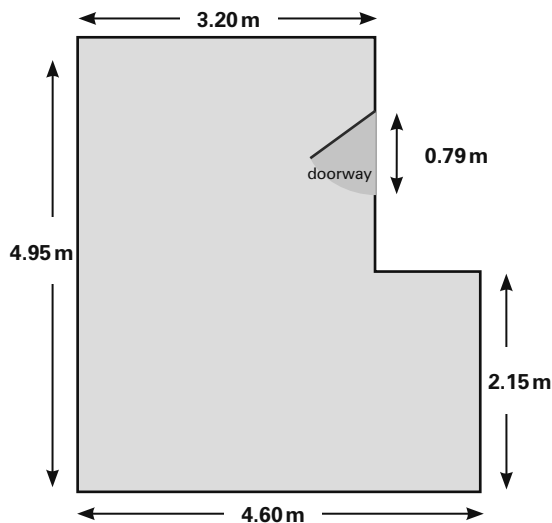
$$3.45 \times 0.82 + 5.05 \times 0.23 = 3.99$$

Data Sheet Questions

- 1 Shazia buys Berber carpet for a bedroom that is 3 metres wide and 4 metres long.
- a What is the cost of 1 metre of 4-metre wide Berber carpet? (1 mark)
- b Shazia buys 3 metres of the 4-metre wide Berber carpet.
Is it cheaper to buy 4 metres of the 3-metre wide Berber carpet?
Show your working. (2 marks)
- c Shazia also buys underlay for the bedroom.
Calculate the cost of the underlay. (2 marks)
- 2 Dan buys fitted carpet and underlay for his flat.
The total price is £587.55
He pays 5% deposit, followed by 36 monthly payments of £21.72
How much does he pay altogether? (3 marks)

students need to distinguish between buying a running metre of carpet at so much per metre and a square metre of underlay

- 3 The floor plan of Gary's living room is shown below.



Gary fits patterned carpet in his living room.
He chooses the cheapest way to do this without any joins.

- a How much does Gary pay for the carpet? (2 marks)
- b How much carpet is wasted? (3 marks)
- c Gary uses Tightgrip rods to fix the edge of the carpet.
 - Tightgrip rods are not used at doorways.
 - The doorway is 76 centimetres wide.
 How much does Gary pay for Tightgrip rods?
Show your working. (3 marks)

students have to look at the overall measurements for an irregularly shaped room

drawing out the piece of carpet alongside the room plan may help to see where the two rectangles will be removed and wasted

Answers and mark scheme

Question	Answers	Marks	Comments
1a	£34.99	D1	
1b	£104.79	M1	or £111.16
	£111.16 and No	A1	£104.79 and No
1c	$12 \times \text{£}3.95$	M1	
	£47.40	A1	£47.4 does not earn this mark
2	$587.55 \times \frac{5}{100}$ (= 29.37)	M1	
	36×21.72 +their 29.37	M1dep	must have attempted 5%
	£811.29	A1	
3a	5-metre wide \times 4.6	M1	or 44.90×4.6
	£206.95	A1	
3b	11.4×2.8 (= 3.92)	M1	
	0.05×4.6 (= 0.23)	M1 ind	
	4.15 m ²	A1	
3c	$4.95 + 4.60 + 2.15 + 1.40 + 2.80 + 3.20$ (= 19.1) oe	M1	allow one error
	[their 19.1m – 76cm] \div 12	M1	may be seen as 12m not enough but 24m is enough
	£8.50	A1	

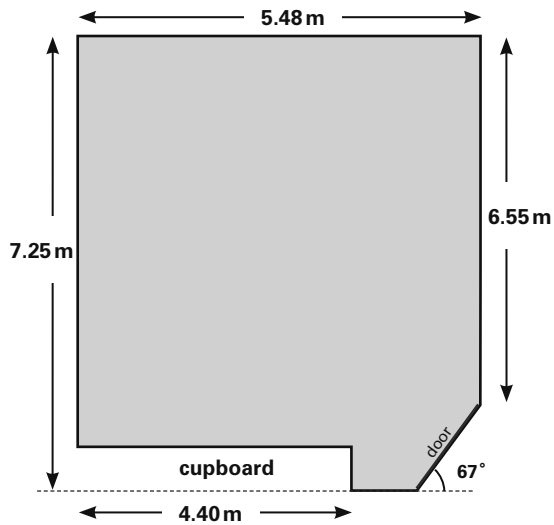
Common Errors

Look out for students who:

- fail to read all the data (for example, the definitions of light, medium and heavy use)
- confuse length (used for different width carpets) and area (used for underlay)
- do not use 2 decimal places when giving a money answer
- correct a bill to 2 decimal places rather than rounding down to the nearest penny

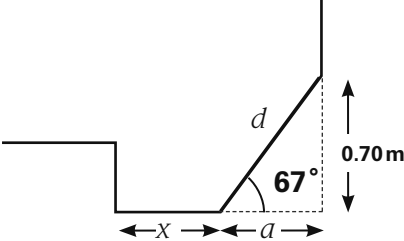
Extension Questions

- 1 Marco buys carpet and underlay that costs £1 250
He chooses to pay 5% deposit and then £49.70 per month for 3 years.
Work out the percentage increase in the amount that Marco pays compared with the actual cost.
- 2 This is the floor plan of Jan's living room.



- a Jan buys plain carpet for this room.
She plans to have one join in the carpet.
Work out the cheapest way that Jan can carpet the room.
- b The door opens back onto the wall beside the cupboard.
Is there enough space to open it right back against the wall?

Extension Answers

Question	Answers
1	Deposit = £62.50 Payments = £1789.20 Total paid = £1851.70 Increase = £601.70 Increase % = 48% (48.136)
2a	2 × 4-metre wide × 5.48m costs £361.57 2 × 3-metre wide × 7.25m costs £369.60 Cheaper to use 4-metre wide carpet
2b	 <p> $a = 0.297 \dots$ $d = 0.760 \dots$ $x = 5.48 - 4.40 - 0.297 = 0.783$ Yes </p>

Further Development

- 1 Carpet prices can be researched on the internet, where many more variations will be found. A data sheet could be produced that has prices for carpets made from wool, synthetics, mixtures and so on.
- 2 Students could draw room plans for rooms at home, showing overall measurements. Rooms that are not simple rectangles are of greatest interest – the cut-offs could be considered as potential rugs or flooring for cupboards rather than just wastage.
- 3 Using their new data, students could write their own exam questions.
- 4 Be an exam writer!
Encourage students to use the given data sheet to write their own questions for each other.