

R4

Proportional reasoning

- Assess these sample pieces of work on proportion
- Correct the work and think of feedback to give to the learner, identifying and explaining errors that have been made and how the solution strategies can be improved.

RECIPE

Pancake mix


For 4 pancakes you will need:

6 dessertspoons of flour

$\frac{1}{4}$ litre milk

1 pinch salt

1 egg




You want to make 10 pancakes.






1. How much flour do you need?
2. How much milk do you need?

PAINT PRICES

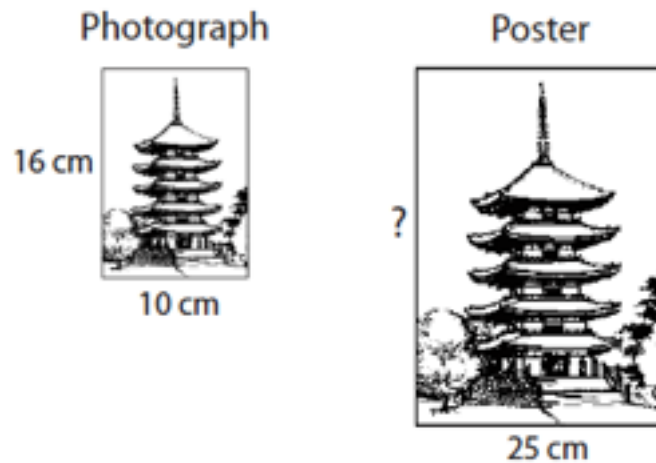
Calculate the missing prices of the paint cans below.

The prices are proportional to the amount of paint in the can.



£ ...	£ ...	£15	£ ...	£ ...
				
0.6 litres	0.75 litres	1 litre	2.5 litres	4.54 litres (1 gallon)

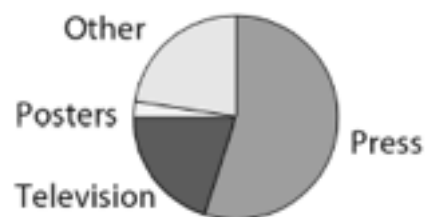
ENLARGING A PHOTOGRAPH TO MAKE A POSTER



1. The photograph is enlarged to make a poster.
The photograph is 10 cm wide and 16 cm high.
The poster is 25 cm wide.
How high is the poster?
2. In the poster, the building is 30 cm tall.
How tall is it in the photograph?

ADVERTISING

	% spent	Angle in pie chart
Press	55	
Television	20	72°
Posters		9°
Other		



The pie chart shows the proportion spent on advertising in different media in one year.

Calculate the missing entries in the table.

Sample work

- (i) Mark the answers right or wrong.
- (ii) Find the causes of the mistakes.
- (iii) Write down your advice to the learner, explaining how the work should be improved, even when the answer is right.

Recipe

- ① 10 pancakes = $6 + 6 + 3 = 15$ spoons of flour
- ② = $\frac{1}{4} + \frac{1}{4} + \frac{1}{8} = \frac{3}{8}$ pints of milk.

Paint prices

- 1. 0.6 litres $15 \div 0.6 = 25p$
- 2. 0.75 litres = $\frac{1}{2} + \frac{1}{4}$
= $\pounds 7.50 + \pounds 3.75 = \pounds 11.25$
- 3. 2.5 litres = $2 + \frac{1}{2}$
= $\pounds 30 + \pounds 7.50 = \pounds 37.50$
- 4. 4.54 litres = 15×4.54
= 68.1

Enlarging a photograph to make a poster

The poster is 15cm bigger

- (1) $16 + 15 = 31$ cm high.
- (2) $30 - 15 = 15$ cm high.

Advertising

20% $\Rightarrow 72^\circ$	Press = $72^\circ + 72^\circ + 36^\circ + 18^\circ \Rightarrow 198^\circ$	$\begin{array}{r} 55 \\ 20 \\ \hline 75 \\ 2.5 \\ \hline 77.5 \end{array}$
10% $\Rightarrow 36^\circ$	Poster = $9^\circ \Rightarrow 2.5\%$	
5% $\Rightarrow 18^\circ$	Other = $100 - 77.5 = 22.5\%$	

$= 20\% + 2.5\%$
 $\Rightarrow 72^\circ + 9^\circ = 81^\circ$