

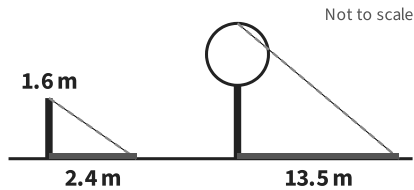
Direct Proportion: Worded Problems *stretch*

ANSWERS 

1



At one time of day, the length of a shadow is directly proportional to the height of the object. A 1.6 m post casts a 2.4 m shadow. A tree casts a 13.5 m shadow. How tall is the tree?



$$\text{shadow} = 1.5 \times \text{height}; 13.5 \div 1.5$$

9 m

Answer

2



The distance sound travels is directly proportional to the time. Sound travels 1.7 km in 5 seconds. How far does it travel in 0.8 minutes?

$$0.8 \text{ minutes} = 48 \text{ s}; 0.34 \times 48$$

16.32 km

Answer

3



Shop A sells 3.5 m of rope for £8.40. Shop B sells 5 m of the same rope for £11.75. The price is directly proportional to the length in each shop. Which shop is better value? Show how you know.

$$A: £2.40 \text{ a metre}, B: £2.35 \text{ a metre}$$

Shop B

Answer

4



£50 can be exchanged for €58. €25 can be exchanged for \$27. How many dollars can be exchanged for £120? Give your answer to the nearest cent.

$$£120 = 120 \times 1.16 = €139.20$$

$$139.2 \times 1.08 = 150.336$$

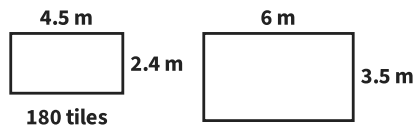
\$150.34

Answer

5



The number of tiles needed is directly proportional to the area of a floor. 180 tiles cover a floor 4.5 m by 2.4 m. How many tiles cover a floor 6 m by 3.5 m?



$$\text{areas } 10.8 \text{ m}^2 \text{ and } 21 \text{ m}^2$$

$$180 \times \frac{21}{10.8} = 350$$

350 tiles

Answer

6



The cost of cheese is directly proportional to its mass. 250 g costs £3.60. Kai works out the cost of 1.5 kg as $3.60 \div 250 \times 1.5 = £0.02$. Explain his mistake and find the correct cost.

$$\text{he did not change } 1.5 \text{ kg to } 1500 \text{ g}$$

$$3.60 \times 6 = 21.60$$

£21.60

Answer

7



Mia's pay is directly proportional to the hours she works. She is paid £86.40 for 8 hours. She wants to earn at least £250. How many whole hours must she work?

$$250 \div 10.80 = 23.1\ldots, \text{ so } 24$$

24 hours

Answer

8



A gym charges £15 a month plus £4 for each visit. Is the monthly cost directly proportional to the number of visits? Explain.

$$0 \text{ visits cost } £15, \text{ not } £0$$

No

Reason