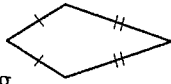




Mini Test 23: Space, Measurement and Data

- 1 The perimeter of this kite is 160 metres. Each of the shorter sides is 30 metres long. How long is each of the longer sides?
 A 45 m B 50 m C 65 m D 100 m

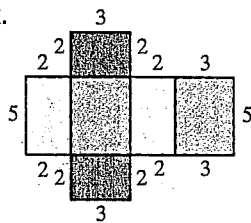


- 2 A light on a shop sign turns on for 20 seconds and then off for 5 seconds, on for 20 seconds and off for 5 seconds and so on. What is the probability that when Angela looks at the sign the light will be on?
 A 25% B 40% C 75% D 80%

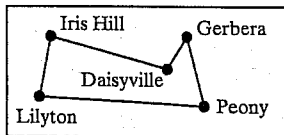
- 3 The scores Ned achieved in his first nine tests are 76, 78, 83, 85, 87, 87, 88, 91 and 94. In his tenth test, Ned scores 96. Which is correct?

- A The mean increases but the mode and median do not change.
 B The mean and median increase but the mode does not change.
 C The mean, median and mode all increase.
 D The median increases but the mode and mean do not change.

- 4 This is the net of a box. (All dimensions are in centimetres.) What is the volume of the box (in cm^3)?
 A 30 B 38
 C 50 D 60



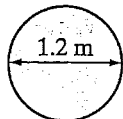
- 5 This is a map of Garden Shire.



Scale:
1 cm represents 6 km

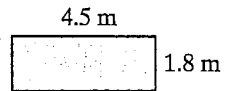
- The distance from Iris Hill to Daisyville on the map is 5 cm. Rosie drives from Iris Hill to Daisyville in half an hour. What is her average speed in kilometres per hour? km/h

- 6 A circular tabletop has diameter of 1.2 metres. The circumference of the tabletop would be closest to
 A 2 m B 4 m C 6 m D 8 m



- 7 A coin is tossed twice. What is the probability of getting heads both times?
 A $\frac{1}{2}$ B $\frac{1}{3}$ C $\frac{1}{4}$ D $\frac{2}{3}$

- 8 Boards used to make a deck are 90 mm wide and 4500 mm long. Which calculation will give the number of boards needed for this deck?
 A 1.8×0.09 B 1.8×0.009
 C $1.8 \div 0.09$ D $1.8 \div 0.009$



- 9 If an isosceles right-angled triangle is cut along its axis of symmetry, what description applies to the two resulting triangles?
 A isosceles and right-angled
 B isosceles but not right-angled
 C right-angled but not isosceles
 D neither right-angled nor isosceles

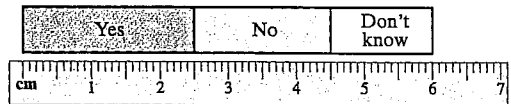
- 10 Lucy spun this spinner 30 times. Which table is most likely to show the result?



Number spun	Number of spins	Number spun	Number of spins	Number spun	Number of spins	Number spun	Number of spins
1	10	1	5	1	12	1	15
2	10	2	10	2	6	2	10
3	10	3	15	3	12	3	5

A B C D

- 11 1200 people were asked if they had read a particular book. The results are shown in the bar chart.



- How many people said 'no'?

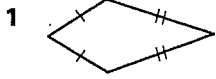
- 12 The table shows the capacity of the fuel tank and the fuel consumption of four different models of a car. Which will travel furthest on a full tank of fuel?

Model	Capacity	Consumption
Sedan	60 L	8 L per 100 km
Coupe	42 L	6 L per 100 km
Van	54 L	9 L per 100 km
Wagon	56 L	7 L per 100 km

A sedan B coupe C van D wagon

Mini Test 23: Space, Measurement and Data

- 1 B 2 D 3 A 4 A 5 60 km/h 6 B 7 C 8 C
9 A 10 B 11 400 12 D



1 The kite has two sides of length 30 metres.
Total length of those sides is 60 metres.
Perimeter = 160 m
Length of two remaining sides
= (160 - 60) m
= 100 m
Length of each side = 100 m ÷ 2
= 50 m

2 The light is on for 20 seconds out of 25.

$$\begin{aligned} \text{Probability that it is on} &= \frac{20}{25} \\ &= \frac{4}{5} \\ &= \frac{4}{5} \times 100\% \\ &= 80\% \end{aligned}$$

3 76, 78, 83, 85, 87, 87, 88, 91, 94

The 10th score is 96.

The mean must increase because the score that is being included is higher than all the other scores.

The mode will not change.

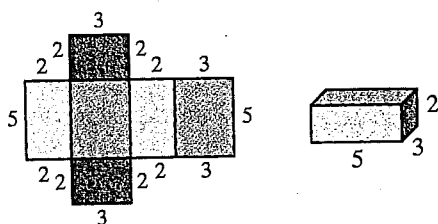
[The score with the greatest frequency is still 87.]

The median will not change.

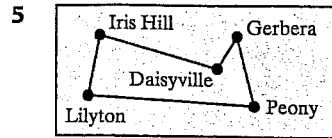
[The median of the nine scores is the fifth score: 87. The median of the ten scores is the average of the fifth and sixth scores, but they are both 87 so the median will still be 87.]

So, the mean increases but the mode and median do not change.

4 The box is a rectangular prism, 5 cm long, 3 cm wide and 2 cm high.



$$\begin{aligned} \text{Volume} &= \text{length} \times \text{width} \times \text{height} \\ &= (5 \times 3 \times 2) \text{ cm}^3 \\ &= 30 \text{ cm}^3 \end{aligned}$$

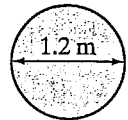


Scale: 1 cm represents 6 km

Distance on map = 5 cm
Real distance = 5 × 6 km
= 30 km

Rosie travels 30 km in half an hour.
She would travel 60 km in one hour.
Her speed is 60 km/h.

6 Circumference = π × diameter
= π × 1.2 cm



The value of π is a little bit more than 3.

Now 3 × 1.2 = 3.6

So π × 1.2 will be about 4.

The circumference of the tabletop is closest to 4 m.

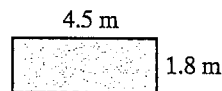
7 When a coin is tossed twice there are four possible outcomes: head head, head tail, tail head and tail tail.

A head each time is one of those four outcomes.

Probability of two heads = $\frac{1}{4}$

8 The deck measurements are in metres but the board measurements are in millimetres.

The boards are 90 mm, or 0.09 metres wide and 4500 mm or 4.5 metres long.



So the boards are the same length as the deck.

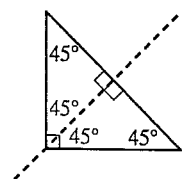
Number of boards will be the number of times that 0.09 goes into 1.8.

The correct calculation is 1.8 ÷ 0.09.

9 If the original triangle is both right-angled and isosceles it will have one angle of 90° and two other angles of 45°.

The axis of symmetry passes through the right angle dividing it into two equal parts. So the two new triangles both have two angles of 45° (and one of 90°).

The new triangles are both right-angled and isosceles.



10 The spinner is divided into six sections.

One of those sections shows 1 so the chance of getting 1 is $\frac{1}{6}$.



In 30 spins, you would expect 1 to occur $\frac{1}{6} \times 30$ times or 5 times.

Two of those sections show 2 so the chance of getting 2 is $\frac{2}{6}$ or $\frac{1}{3}$.

In 30 spins, you would expect 2 to occur $\frac{1}{3} \times 30$ times or 10 times.

Three of those sections show 3 so the chance of getting 3 is $\frac{3}{6}$ or $\frac{1}{2}$.

In 30 spins, you would expect 3 to occur $\frac{1}{2} \times 30$ times or 15 times.

The most likely result is

Number spun	Number of spins
1	5
2	10
3	15

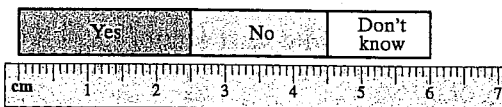
11 The bar chart is 6 cm long.

So a length of 6 cm represents 1200 people.

1 cm represents $1200 \div 6$ people or 200 people.

Now the region for 'no' is 2 cm long.

Number of people who said 'no' is 2×200 or 400.



12

Model	Capacity	Consumption
Sedan	60 L	8 L per 100 km
Coupe	42 L	6 L per 100 km
Van	54 L	9 L per 100 km
Wagon	56 L	7 L per 100 km

Try each option:

The sedan uses 8 litres for every 100 km travelled. Its fuel tank holds 60 litres.

$$\begin{aligned} \text{Distance} &= (60 \div 8) \times 100 \text{ km} \\ &= 7.5 \times 100 \text{ km} \\ &= 750 \text{ km} \end{aligned}$$

The coupe uses 6 litres for every 100 km travelled. Its fuel tank holds 42 litres.

$$\begin{aligned} \text{Distance} &= (42 \div 6) \times 100 \text{ km} \\ &= 7 \times 100 \text{ km} \\ &= 700 \text{ km} \end{aligned}$$

The van uses 9 litres for every 100 km travelled. Its fuel tank holds 54 litres.

$$\begin{aligned} \text{Distance} &= (54 \div 9) \times 100 \text{ km} \\ &= 6 \times 100 \text{ km} \\ &= 600 \text{ km} \end{aligned}$$

The wagon uses 7 litres for every 100 km travelled. Its fuel tank holds 56 litres.

$$\begin{aligned} \text{Distance} &= (56 \div 7) \times 100 \text{ km} \\ &= 8 \times 100 \text{ km} \\ &= 800 \text{ km} \end{aligned}$$

The wagon travels furthest on a full tank of fuel.