



Longer Maths and Data 9

1. Daniel got 29 questions correct in a maths test. There were 50 questions in the test. However, his teacher made some mistakes and had to remark all the papers. When Daniel's paper was remarked his score increased to 78%. How many more questions did Daniel get right after his paper was remarked?
2. Sadie wakes up at 7:35am, she gets showered, has her breakfast and walks to school. She arrives at school at 9:03 am. How many minutes does Sadia's morning routine take?
3. Luke is the youngest in his family. Henry is twice his age and will be twenty-three next year. Bradley is fifteen years older than Luke. How old is Bradley?
4. 240 children attend an audition for a part in a show. Three fifths of the children are girls. How many boys are there?
5. What is the acute angle between the hour hand and the minute hand on an analogue clock when the time is 10:00 pm?
6. What is the difference between the product of 80 and 3 and 772 divided by 4 (the quotient of $77s$ and 4)?



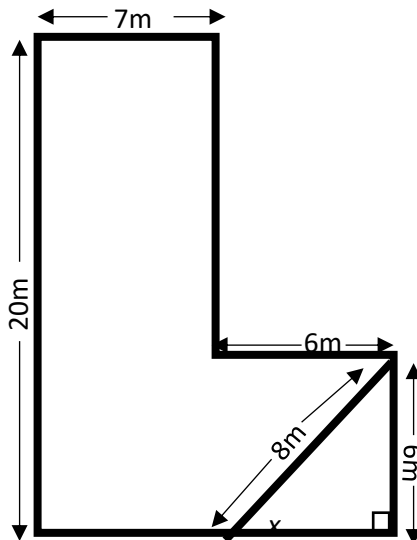
7. Saara has 448 stickers. She puts them all in an album containing 30 pages. Each page can hold 15 stickers. She fills up all of the pages except for the last page. How many stickers does Saara put into the last page?

8. The three angles in a triangle are $3x$, $2x$ and x . Calculate $2x + 9$.

9. Joanna has a box containing black, white and pink balls. She has a three in seven chance of randomly choosing a white ball. If there are 49 balls in the box and 17 of them are pink, how many are black?

10. Haadia's recipe for brownies states that the ratio of sugar to flour is 8:11. If she uses 24 grams of sugar, how many grams of flour will she need?

The diagram below shows the layout of Ben's garden. He cordons off a plot of land to build a dog kennel. The dog kennel plot of land is in the shape of an isosceles triangle. The remaining land is covered with grass.





11. What is the perimeter of the dog kennel?
12. What is the area of the dog kennel?
13. What is the value of angle x ?
14. What is the perimeter of the grassy land?
15. What is the area of the grassy land?
16. Calculate the perimeter of the entire garden.

The table below shows the train timetable for the Leeds to London rail service.

Leeds	16.15	16.45	17.15
Wakefield Westgate	16.28	-	17.28
Doncaster	16.46	17.00	17.46
London Kings Cross	18.31	18.45	19.35

17. How many minutes does the 16.15 service take to get from Leeds to London?
18. How much longer does the 17.15 service take to arrive at London than the 16.15 service?
19. London is 189 miles from Leeds, what is the average speed of the 16.45 service?



20. If you get on the 16.45 service at Doncaster, in how many minutes will it be before you reach Kings Cross?
21. The 17.15 service from Leeds to Kings Cross is delayed by 27 min, what time will it arrive in London?

Answers

1. Daniel got 29 questions correct in a maths test. There were 50 questions in the test. However, his teacher made some mistakes and had to remark all the papers. When Daniel's paper was remarked his score increased to 78%. How many more questions did Daniel get right after his paper was remarked?

$29/50 = 58\%$, when remarked 20% more. 20% of 50 = 10

2. Sadie wakes up at 7:35am, she gets showered, has her breakfast and walks to school. She arrives at school at 9:03 am. How many minutes does Sadia's morning routine take?

88 minutes- "money and time use a number line"

3. Luke is the youngest in his family. Henry is twice his age and will be twenty-three next year. Bradley is fifteen years older than Luke. How old is Bradley?

Henry is 22 now, so Luke is 11 and Bradley is 26.

4. 240 children attend an audition for a part in a show. Three fifths of the children are girls. How many boys are there?

96 If $3/5$ are girls, then $2/5$ must be boys. "divide by bottom, times by top"

5. What is the acute angle between the hour hand and the minute hand on an analogue clock when the time is 10:00 pm?

60° Each number on a clock = 30° turn ($360^\circ \div 12 = 30^\circ$).



6. What is the difference between the product of 80 and 3 and 772 divided by 4 (the quotient of 77s and 4)?

$$80 \times 3 = 240, 772 \div 4 = 193. 240 - 193 = \underline{47}$$

7. Saara has 448 stickers. She puts them all in an album containing 30 pages. Each page can hold 15 stickers. She fills up all of the pages except for the last page. How many stickers does Saara put into the last page?

$$\underline{13} \quad 30 \text{ pages} \times 15 \text{ per page} = 450 \text{ places for stickers in total. } 450 - 448 = 2$$

8. The three angles in a triangle are $3x$, $2x$ and x . Calculate $2x + 9$.

$$3x + 2x + x = 6x. 180^\circ = 6x, \text{ so } x = 30^\circ. 2x + 9 = 60^\circ + 9 = \underline{69}$$

9. Joanna has a box containing black, white and pink balls. She has a three in seven chance of randomly choosing a white ball. If there are 49 balls in the box and 17 of them are pink, how many are black?

$$17/49 \text{ are pink, } 3/7 = 21/49 \text{ are white, so } \underline{11 \text{ black.}}$$

10. Haadia's recipe for brownies states that the ratio of sugar to flour is 8:11. If she uses 24 grams of sugar, how many grams of flour will she need?

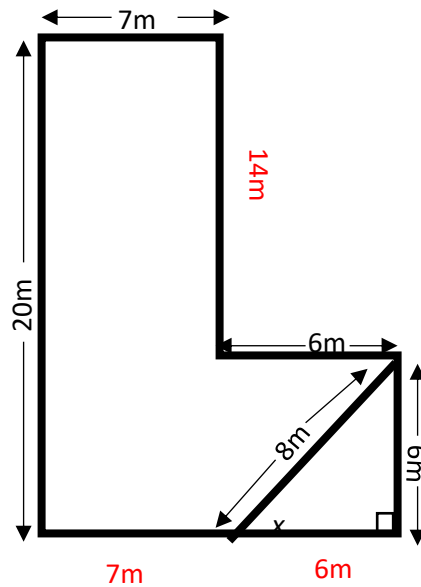
33 g – Sugar : Flour

$$\begin{array}{l} 8 \quad : \quad 11 \\ 24 \quad : \quad 33 \text{ -- 3 sets of the ratio to get to 24g of sugar} \end{array}$$

The diagram below shows the layout of Ben's garden. He cordons off a plot of land to build a dog kennel. The dog kennel plot of land is in the shape of an isosceles triangle. The remaining land is covered with grass.



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11. What is the perimeter of the dog kennel?

(fill in missing values first) $6 + 6 + 8 = \underline{20m}$

12. What is the area of the dog kennel?

area of triangle base X height $\div 2$, $6 \times 6 \div 2 = \underline{18m^2}$

13. What is the value of angle x ?

angles in triangle = 180° . Isosceles = 2 identical angles, $180^\circ - 90^\circ = 90^\circ \div 2 = \underline{45^\circ}$

14. What is the perimeter of the grassy land?

$7 + 14 + 6 + 8 + 7 + 20 = \underline{62m}$

15. What is the area of the grassy land?

$\underline{158m^2} = \text{total area} - (20 \times 7) + (6 \times 6) = 176m^2 - 18m^2 \text{ (kennel)} = 158m^2$.

16. Calculate the perimeter of the entire garden.

$7 + 14 + 6 + 6 + 7 + 20 = \underline{66m}$



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Wakefield Westgate	16.28	-	17.28
Doncaster	16.46	17.00	17.46
London Kings Cross	18.31	18.45	19.35

17. How many minutes does the 16.15 service take to get from Leeds to London?

136 minutes – use a number line.

18. How much longer does the 17.15 service take to arrive at London than the 16.15 service?

16:15 = 136 mins, 17:15 = 140 mins so difference = 4 minutes

19. London is 189 miles from Leeds, what is the average speed of the 16.45 service?

189 miles ÷ 2 hours = 94.5mph

20. If you get on the 16.45 service at Doncaster, in how many minutes will it be before you reach Kings Cross?

105 minutes

21. The 17.15 service from Leeds to Kings Cross is delayed by 27 min, what time will it arrive in London?

19:35 + 27 mins = 20:02

