

11+ Practice Test Answers

11+ Maths Test 8

Question	Answer	Explanation	Marks
1	523.6 cm ³	<p>The surface area of a sphere is given by the formula $A = 4\pi r^2$, where r is the radius of the sphere.</p> <p>We are told that the surface area is 100π cm², so we can write:</p> $100\pi = 4\pi r^2$ <p>Dividing both sides by 4π:</p> $25 = r^2$ <p>Taking the square root of both sides:</p> $5 = r$ <p>So the radius of the sphere is 5 cm.</p> <p>The volume of a sphere is given by the formula $V = (4/3)\pi r^3$.</p> <p>Substituting $r = 5$:</p> $V = (4/3) \times \pi \times 5^3$ $V = (4/3) \times \pi \times 125$ $V \approx 523.6 \text{ cm}^3$	1
2	6	<p>To find the number of batches Mia needs to bake, we need to divide the total number of cupcakes required by the number of cupcakes in each batch.</p> <p>Total cupcakes needed: 72 Cupcakes per batch: 12</p> <p>Number of batches = $72 \div 12$ = 6</p> <p>Therefore, Mia needs to bake 6 batches of cupcakes to reach her goal of 72 cupcakes for the school fundraiser.</p>	1

3	2 tickets and 2 popcorn buckets	<p>To solve this problem, we need to find a combination of tickets and popcorn buckets that totals less than £30.</p> <p>Let's check each option:</p> <p>1. 2 tickets and 2 popcorn buckets: 2 tickets at £8 each = £16 2 popcorn buckets at £5 each = £10 Total cost = £16 + £10 = £26 This combination is within the budget.</p> <p>2. 3 tickets and 2 popcorn buckets: 3 tickets at £8 each = £24 2 popcorn buckets at £5 each = £10 Total cost = £24 + £10 = £34 This combination exceeds the budget.</p> <p>3. 2 tickets and 3 popcorn bucket: 2 tickets at £8 each = £16 3 popcorn bucket at £5 each = £15 Total cost = £16 + £15 = £31 This combination exceeds the budget.</p> <p>4. 3 tickets and 3 popcorn buckets: 3 tickets at £8 each = £24 3 popcorn buckets at £5 each = £15 Total cost = £24 + £15 = £31 This combination exceeds the budget.</p> <p>The only combination that stays within the £30 budget is 2 tickets and 2 popcorn buckets.</p>	1
4	12	<p>To find the number of boxes Sarah's hair salon ordered, we need to calculate the total number of bottles ordered and divide it by the number of bottles per box.</p> <p>First, let's find the total number of bottles ordered:</p> $36,000 \text{ ml} \div 250 \text{ ml per bottle} = 144 \text{ bottles}$ <p>Now, we can calculate the number of boxes by dividing the total number of bottles by the number of bottles per box:</p> $144 \text{ bottles} \div 12 \text{ bottles per box} = 12 \text{ boxes}$ <p>Therefore, Sarah's hair salon ordered 12 boxes of shampoo from the factory.</p>	1
5	30 cm	<p>To find the length of the rectangular fish tank, we need to use the formula for the volume of a cuboid:</p> $\text{Volume} = \text{length} \times \text{width} \times \text{height}$ <p>We are given the volume ($36,000 \text{ cm}^3$), width (30 cm), and height (40 cm). Let's substitute these values into the formula:</p> $36,000 = \text{length} \times 30 \times 40$ <p>To solve for the length, we divide both sides by (30×40):</p> $\text{length} = 36,000 \div (30 \times 40)$ $\text{length} = 36,000 \div 1,200$ $\text{length} = 30$ <p>Therefore, the length of the fish tank is 30 cm.</p>	1

6	$180 \div 12$	<p>To find the length of each piece of string, we need to divide the total length of the string by the number of equal pieces Amelia wants to cut it into.</p> <p>The total length of the string is 180 cm, and Amelia wants to cut it into 12 equal pieces.</p> <p>Therefore, the correct expression to find the length of each piece of string is $180 \div 12$.</p> <p>$180 \div 12 = 15$ cm</p> <p>So, each piece of string will be 15 cm long.</p>	1
7	30°	<p>To find the angle of each slice, we need to divide the total degrees in a circle by the number of slices.</p> <p>A full circle has 360°, and the extra-large pizza is cut into 12 equal slices.</p> <p>$360^\circ \div 12 = 30^\circ$</p> <p>Therefore, each slice of the extra-large pizza has an angle of 30°.</p>	1
8	18.75	<p>To calculate the total cost of Emma's cake, we need to substitute the given values into the formula:</p> <p>Total Cost = $5 + 2.5L + 1.25F$</p> <p>Emma's cake has 4 layers ($L = 4$) and 3 types of frosting ($F = 3$).</p> <p>Substituting these values:</p> <p>Total Cost = $5 + 2.5(4) + 1.25(3)$</p> <p>Total Cost = $5 + 10 + 3.75$</p> <p>Total Cost = 18.75</p> <p>Therefore, Emma will pay £18.75 for her cake.</p>	1
9	35 g	<p>To find the average (mean) weight of the remaining seashells, we need to:</p> <ol style="list-style-type: none"> 1. Find the total weight of the remaining seashells by subtracting the weight of the given seashell from the total weight of the collection. 2. Divide the total weight of the remaining seashells by the number of remaining seashells. <p>Amelia's seashell collection initially weighed 420 g, and she gave away a seashell weighing 35 g.</p> <p>Total weight of remaining seashells = $420 \text{ g} - 35 \text{ g} = 385 \text{ g}$</p> <p>Number of remaining seashells = $12 - 1 = 11$</p> <p>Average weight of remaining seashells = $385 \text{ g} \div 11 = 35 \text{ g}$</p>	1

10

39

To find the number of students in each group, we need to divide the total number of students by the number of groups.

Total students: 312
Number of groups: 8

$$312 \div 8 = 39$$

Therefore, each group will have 39 students.

1