

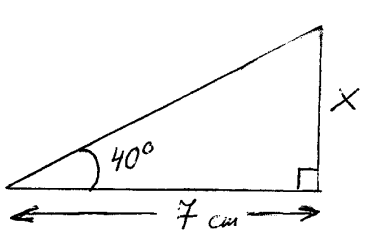
MATHEMATICS

Entrance Exam Samples tasks

1. The straight line $y = kx + b$ passes through the points $(0 ; -2)$ and $(4 ; 0)$. State the values of k and b .

Answer: $k = \dots\dots\dots$;
 $b = \dots\dots\dots$

2. Find the value of x , if x is a side of the triangle given below. Give your answer as whole number.



Answer: $x \approx \dots\dots\dots$ cm.

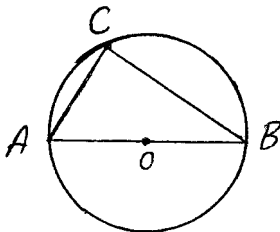
3. State the value of n for which $(0.5)^{10} \cdot 8^{20} = 2^n$.

Answer: $n = \dots\dots\dots$

4. Find the coordinates $(x_v ; y_v)$ of the vertex of the graph (parabola) of the function $f(x) = x^2 - 2x + 3$.

Answer: $x_v = \dots\dots\dots$;
 $y_v = \dots\dots\dots$

5. The triangle ABC is inscribed into the circle. AB is diameter of the circle. Calculate the sum of the measures of the angles CAB and CBA.



Answer: $\angle CAB + \angle CBA = \dots\dots\dots$

6. Find x , if $\pi x + 4 = \pi^2 - 2x$. Give your answer in a simpler form.

Answer: $x = \dots\dots\dots$

7. A truck uses 2.5 litres of fuel to travel 8 kilometres. How far will the truck travel on 120 litres of fuel?

Answer: $\dots\dots\dots$ km.

8. How many odd natural three–digit numbers are there?

Answer:

9. What is the percentage in decrease of the product of two numbers, a and b , if number a is decreased by 20%, and number b is decreased by 10%.

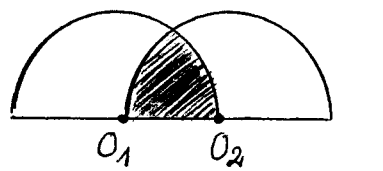
10. Simplify $\frac{5x^2 - 20}{10x^2 + 10x - 20}$.

11. The quiz scores of a class of n students are shown in the table.

Quiz score	6	7	8	9
Frequency (number of students)	9	3	a	5

The mean score is 7.2. Find the values of a and n .

12. In the diagram two equal semi-circles with centres O_1 and O_2 , and radii 8 cm are given. Calculate the area of the shaded region.



13. Solve the inequality: $\frac{1}{x-2} > \frac{1}{x}$

14. In a group of 13 entertainers, 8 are singers and 5 are comedians. A concert is to be given by 5 of these entertainers. In the concert there must be at least 1 comedian and there must be more singers than comedians. Find the number of different ways that the 5 entertainers can be selected?