

Math Section

Instructions:

- Please note that the following are just example questions to help you prepare for the test.
- The actual exam will consist of 10 questions, to be completed within 20 minutes. Please prepare accordingly.

1. Solve for the value of x the following equations.

- $7 - 2\{3x - (4 - x)\} = 5(x + 1)$
- $(x + 3)(x - 2) = 36$

2. Factorize the following expression.

$$3x(x + 2) - 4(x + 2)$$

3. Simplify the following.

$$\sqrt{75} - 2\sqrt{12} + \sqrt{27}$$

4. The parabola $y = \frac{1}{2}x^2$ and the line $y = x + 4$ intersect at two points.

- Find the coordinates of the two points of intersection.
- Taking the two points from (i) above to be point A and point B, and point O to be the origin, calculate the area of triangle OAB.

5. For the parabola $y = ax^2$, as x increases from 1 to 4, y increases by 45, find a .

6. A rectangular prism container measures 20 cm in length, 15 cm in width and 12 cm in height.

Water filling the container to a depth of 8cm is completely transferred into a cylindrical

container of 10cm radius. Find the height of water in the cylindrical container. (Leave your

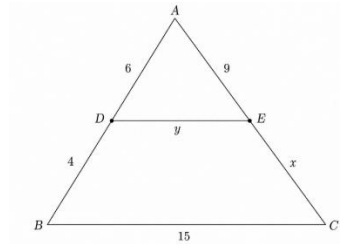
answer in terms of π)

7. A rectangular prism is constructed from 480 identical cubes, each with side length of 2 cm.

The number of cubes along its length, width, and height are in the ratio 5:4:3. Find the

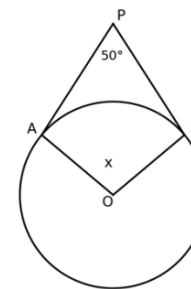
dimensions of the prism.

8. In triangle ABC below, find the values of x and y given that DE is parallel to BC.



9. From an external point P, PA and PB are tangents to a circle with center O. Given that angle

APB=50°, find the size of angle x.



10. Given that AB is the diameter of the circle, C lies on the circle angle BAC=34°, find the size

of angle x.

