



Name: \_\_\_\_\_ Class 9<sup>th</sup> / Sec: \_\_\_\_\_ Date: \_\_\_\_\_ MarksMax [25]

Q1: The distance from the Earth to the Sun is  $e$  kilometers, where  $e = 1.5 \times 10^8$ .

The distance from the Sun to Mercury is  $m$  kilometers, where  $m = 6 \times 10^7$ .

- a) Express  $e:m$  as the ratio of two integers in its simplest form. [1]  
b) The diagram shows when the Earth, the Sun and Mercury are in a straight line, with the Sun between the Earth and Mercury.  
Find the distance from the Earth to Mercury. Give your answer in standard form. [4]
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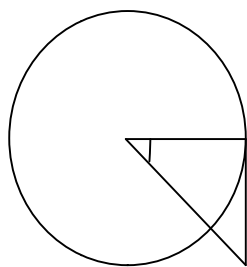
Q2: a) In 2005, the cost of posting a letter was 28 cents. A company posted 1200 letters and was given 4% discount on the cost. Calculate the total discount. [1]

b) In 2006, the cost of posting a letter was increased from 28 cents to 35 cents. Calculate the percentage increase in the cost of posting a letter. [2]

c) After the price increase to 35 cents, the cost to the company of posting 1200 letters was \$ 399. Calculate the percentage discount that the company was given in 2006. [2]

Q3: [the value of  $\pi = 3.142$ ] in the diagram, the circle, centre O, passes through A and B. the radius of the circle is 4 cm and  $\angle AOB = 45^\circ$ .

- a) Find the area of the minor sector AOB. [3]  
b) The tangent at A meets OB produce at T. find the shaded area. [2]



Q4: Factorize completely  $2tv + t - 10v - 5$ . [1]

Make K the subject of the formula  $\sqrt{\frac{h}{k}} = 3$ . [2]

Solve the equation  $x^2 - 23x + 81 = 0$ , giving both answer correct to two decimal places. [2]

Q5: T is inversely proportional to the square of l. Given that T= 9 when l=2, find

- a) The formula for T in terms of L. [2]  
b) The value of L when T=25. [3]