

S.2

MATHEMATICS WORK

1. Use logarithm tables to evaluate $\frac{22.60}{47.80 \times 0.329}$ correct to 2 decimal places

2. Solve for x in $\frac{x^2}{2} = \frac{4}{x}$

3. Calculate the Simple interest on sh. 96,000 for 10 months at a rate of $8\frac{1}{3}\%$ per annum.

4. Use mathematical tables to evaluate $(0.48)^{3/5}$ Correct to 2 decimal places.

5. Given that $h(x) = mx - 7$ and $h(8) = 17$, find the value of i) m ii) $h(4)$ iii) $h^{-1}(3)$

6. Solve the inequality: $\frac{1}{4}x + 5 \geq 1 + \frac{x}{2}$

7. $r * s$ denotes $\frac{s^2 + r^2}{10s}$, find

(a) $4 * -8$

(b) $7 * (4 * -8)$

8. Express $\frac{\sqrt{4} + \sqrt{3}}{\sqrt{4} - \sqrt{3}}$ in the form $a + b\sqrt{c}$, where a , b and c are constants.

9. Solve the Pair of Simultaneous equations $2x + 3y = 8$ and $2y - x = 3$

10. Find the equation of a line which passes through the point $(0, 5)$ and perpendicular to the line $6x - 2y = 14$

PHYSICS HOMEWORK WORK

- 1 (a) what is meant by conduction
- (b) Draw a labeled diagram of a thermos flask and explain how it is able to keep a liquid cold for a long time
- (c) With the help of a diagram, describe how you would determine the upper fixed points of an uncalibrated thermometer.

- 2 (a) state two reasons why mercury is preferred to alcohol as a thermometric liquid
- (b) In a gas thermometer, the pressure of the gas at 0°C is 20 cmHg and at 100°C is 27 cmHg . Determine the room temperature if the pressure at this temperature is 24 cmHg .

- 3 (a) Define Pressure and atmospheric pressure
- (b) State any two factors affecting pressure in solids.
- (c) The dimensions of a cuboid are $5 \text{ cm} \times 2 \text{ cm} \times 20 \text{ cm}$ and weight of the cuboid is 400 kg . Calculate the maximum and minimum pressure exerted.

- 4 (a) what is meant by rectilinear propagation of light
- (b) An extended source is used when an object is placed in front of a source of light. Draw ray diagrams to show the formation of the shadow.
- (c) An object of height 40 cm is placed 50 cm away from a pin-hole camera. The screen is 70 cm from the pin. Draw a ray diagram to show the formation of an image on the screen. Find the magnification and nature of the image.