

L2-PHYSR



NEW ZEALAND QUALIFICATIONS AUTHORITY
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Level 2 Physics, 2013

2.00 pm Wednesday 13 November 2013

RESOURCE SHEET for 91170, 91171, and 91173

Refer to this sheet to answer the questions in your Question and Answer Booklets.

Check that this sheet is printed on the back.

YOU MAY KEEP THIS SHEET AT THE END OF THE EXAMINATION.

You may find the following formulae useful.

91170 Demonstrate understanding of waves

$$\frac{1}{f} = \frac{1}{d_o} + \frac{1}{d_i} \quad \text{or} \quad s_i s_o = f^2$$

$$m = \frac{d_i}{d_o} = \frac{h_i}{h_o} \quad \text{or} \quad m = \frac{f}{s_o} = \frac{s_i}{f}$$

$$n_1 \sin \theta_1 = n_2 \sin \theta_2 \quad \frac{n_1}{n_2} = \frac{v_2}{v_1} = \frac{\lambda_2}{\lambda_1}$$

$$v = f\lambda \quad f = \frac{1}{T} \quad v = \frac{d}{t}$$

Speed of light in a vacuum = $3.00 \times 10^8 \text{ m s}^{-1}$

91171 Demonstrate understanding of mechanics

$$v = \frac{\Delta d}{\Delta t} \quad a = \frac{\Delta v}{\Delta t} \quad v_f = v_i + at$$

$$d = v_i t + \frac{1}{2} at^2 \quad d = \frac{v_i + v_f}{2} t \quad v_f^2 = v_i^2 + 2ad$$

$$a_c = \frac{v^2}{r}$$

$$F = ma \quad \tau = Fd \quad F = -kx$$

$$F_c = \frac{mv^2}{r} \quad p = mv \quad \Delta p = F\Delta t$$

$$E_p = \frac{1}{2} kx^2 \quad E_k = \frac{1}{2} mv^2 \quad \Delta E_p = mg\Delta h$$

$$W = Fd \quad P = \frac{W}{t}$$

circumference of circle = $2\pi r$

where needed, use $g = 9.8 \text{ m s}^{-2}$

91173 Demonstrate understanding of electricity and electromagnetism

$$E = \frac{V}{d} \quad F = Eq \quad \Delta E_p = Eqd$$

$$E_k = \frac{1}{2} mv^2$$

$$I = \frac{q}{t} \quad V = \frac{\Delta E}{q} \quad V = IR$$

$$P = IV \quad P = \frac{\Delta E}{t}$$

$$R_T = R_1 + R_2 + \dots \quad \frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \dots$$

$$F = BIL \quad F = Bqv \quad V = BvL$$