

Topic 05/06. Vibrations and Waves / Light and Optics

1. (a) 0.15 J; (b) 78 cm/s; (c) 18 m/s²
2. (a) 0.30 m and 0.24 m; (b) 0.30 m; (c) 0.17 Hz; (d) 6.0 s.
3. (a) 40.0 cm beyond the lens, real, inverted, $M = -1.00$; (b) No image is formed. Parallel rays leave the lens; (c) 20.0 cm in front of the lens, virtual, upright, $M = +2.00$; (d) analogue of "a": 13.3 cm in front of the lens, virtual, upright, $M = +1/3$; analogue of "b": 10.0 cm in front of the lens, virtual, upright, $M = +1/2$; analogue of "c": 6.67 cm in front of the lens, virtual, upright, $M = +2/3$.
4. (a) 5.36 cm; (b) -18.8 cm; (c) see slide 20 (bottom left figure) or slide 33 of Topic 06; (d) simple magnifier.