

Physics
Wednesday Feb 6th

p 72 (17, 18, 19, 21, 24, 25)

p 953 (4, 7, 8, 9)

p 942 (3, 6)

p 942

3. a) 3
b) 2
c) 3
d) 2
e) 3
f) 1

g) 3
h) 7
i) 1
j) 2
k) 4
l) 4

p 942

6. a) 2.5597

2.5597×10^0

b) 1000

1×10^3

c) 0.256

2.56×10^{-1}

d) 0.0000508

5.08×10^{-5}

7 953 (1, 7, 8, 9)

$$\begin{aligned} 4. \quad \angle C &= 57^\circ \\ c &= 18.4 \\ e &= 12 \end{aligned}$$

$$\begin{aligned} \angle B &= 25^\circ \\ b &= 13.5 \\ f &= 32 \end{aligned}$$

$$\begin{aligned} \angle S &= 36^\circ \\ n &= 13.7 \\ S &= 10 \end{aligned}$$

$$7. \quad a) \quad 42 = 7x$$

$$\frac{42}{7} = \frac{x}{1}$$

$$\boxed{6 = x}$$

$$b) \quad 30 = \frac{x}{5}$$

$$5(30) = x$$

$$\boxed{150 = x}$$

$$c) \quad 12 = x(15 : 30)$$

$$\frac{12}{15 : 30} = x$$

$$\boxed{\frac{12}{0.5} = x = 24}$$

$$d) \quad 8 = 2x - 12^4$$

$$8 = 2x - 20736$$

$$20744 = 2x$$

$$\boxed{10372 = x}$$

$$8. a) F = kx$$

$$\frac{F}{k} = x$$

$$b) \overset{-hk}{G} = \overset{-hk}{kx} + x$$

$$G - hk = x$$

$$c) a = \frac{b \cos \theta}{\cos \theta}$$

$$\frac{a}{\cos \theta} = x$$

$$d) T = 2\pi \sqrt{\frac{l}{x}}$$

$$\frac{T}{2\pi} = \sqrt{\frac{l}{x}}$$

$$\frac{T^2}{(2\pi)^2} = \frac{l}{x}$$

$$\frac{(2\pi)^2}{T^2} = \frac{x}{l}$$

$$\left(\frac{2\pi}{T}\right)^2 = \frac{x}{l}$$

$$9. \quad 4x^2 + 15x + 13 = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= \frac{-15 \pm \sqrt{15^2 - 4(4)(13)}}{2(4)}$$

$$= \frac{-15 \pm \sqrt{225 - 208}}{8}$$

$$= \frac{-15 \pm \sqrt{17}}{8}$$

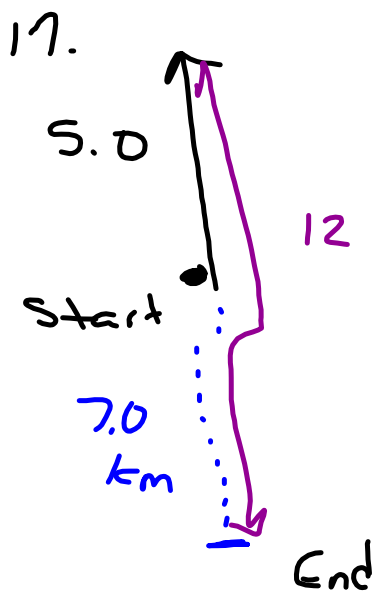
$$x = \frac{-15 \pm 4.1}{8}$$

$$\begin{aligned} a &= 4 \\ b &= 15 \\ c &= 13 \end{aligned}$$

$$x_1 = \frac{-15 + 4.1}{8}$$

$$= -1.36$$

$$x_2 = \frac{-15 - 4.1}{8} = -2.39$$



a) distance
 $5.0 \text{ km} + 12 \text{ km}$
 17 km

b) displacement
 $= 7 \text{ km [S]}$

c) 7 km [N]

18.



$$v = 5.9 \text{ m/s } [\text{W}]$$

$$t = 1.2 \text{ hours}$$

$$= 1.2 \text{ h} \times \frac{60 \text{ min}}{\text{h}} \times \frac{60 \text{ sec}}{\text{min}} = 4320 \text{ sec}$$

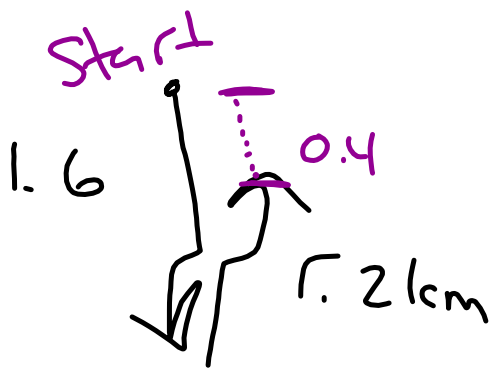
$$d = vt$$

$$= 5.9 \frac{\text{m}}{\text{s}} [\text{W}] \times 4320 \text{ sec}$$

$$d = 25488 \text{ m}$$

$$d = 25000 \text{ m west}$$

19.



a) displacement.

0.4 km downstream

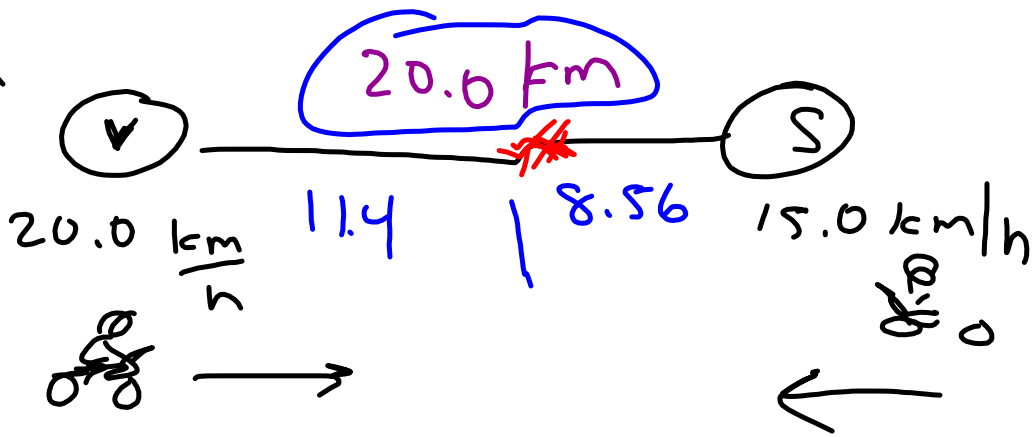
b) velocity = $\frac{\text{displacement}}{\text{time}}$

0.75 h

$$= \frac{0.4 \text{ km down}}{45 \text{ min}}$$

$$= 0.53 \text{ km/h}$$

21.



$d = vt$
 $20.0 = 35.0 \frac{\text{km}}{\text{h}} \times t$

$t = \frac{20.0}{35} = 0.571 \text{ hr}$

24.

$$V = 7 \text{ m/s}$$

$$V_1 = 14 \text{ m/s}$$

$$V_2 = 0 \text{ m/s (Stop)}$$

$$t = 5.0 \text{ sec}$$

$$a = \frac{V_2 - V_1}{t} = \frac{0 - 14}{5.0} = -2.8 \text{ m/s}^2$$

Slowing down

25.

$$v_1 = 0 \text{ m/s (rest)}$$

$$v_2 = 5.4 \text{ m/s}$$

$$t = 12 \text{ sec}$$

$$a) v = \frac{0 + 5.4}{2} = 2.7 \text{ m/s}$$

$$b) a = \frac{v_2 - v_1}{t} = \frac{5.4 - 0}{12} = +0.45 \text{ m/s}^2$$

Speeding
up!

7 80 (1,2,3)
89 (4)

$$x^2 = 3x + 18$$

$$\underline{x^2 - 3x - 18 = 0}$$

- trig
- Pythagorean
- Formula Rearrange
- Quadratic Formula
- Scalar vs vector
- distance v displacement
- speed, velocity, acceleration
- Basic word problems

p 80

$$1. v_1 = 6.0 \text{ m/s}$$

$$v_2 = 38 \text{ m/s}$$

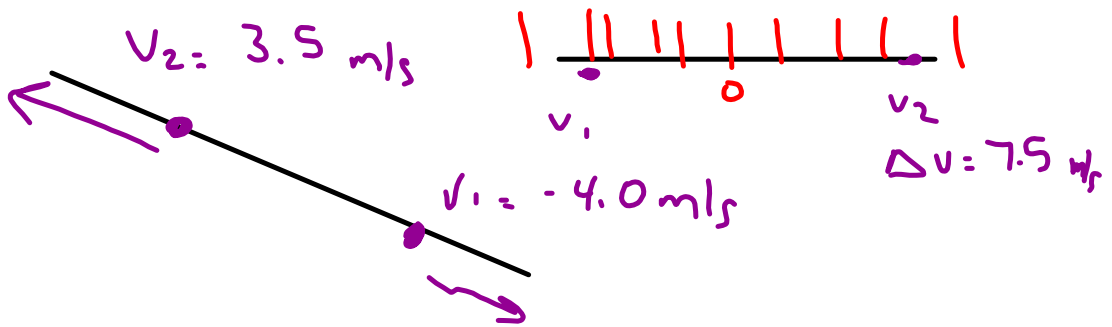
$$t = 4.0 \text{ sec}$$

$$a = \frac{v_2 - v_1}{t}$$

$$= \frac{38 - 6.0}{4.0}$$

$$= \frac{32}{4.0} = 8.0 \text{ m/s}^2$$

2.



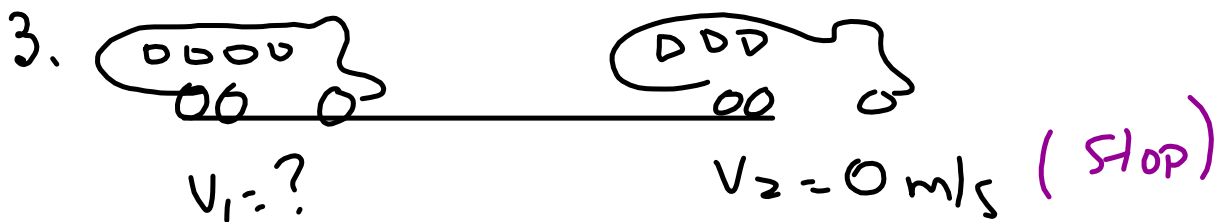
$$v_1 = -4.0 \text{ m/s}$$

$$v_2 = 3.5 \text{ m/s}$$

$$t = 3.0 \text{ sec}$$

$$a = \frac{v_2 - v_1}{t} = \frac{3.5 \text{ m/s} - (-4.0 \text{ m/s})}{3.0 \text{ sec}}$$

$$= \frac{7.5 \text{ m/s}}{3.0 \text{ s}} = 2.5 \text{ m/s}^2$$



$$a = -8.0 \text{ m/s}^2$$

↙ slowing down 8.0 m/s every second.

$$V_2 = V_1 + at$$

$$V_2 - at = V_1$$

$$0 - (8.0 \text{ m/s})(3.0 \text{ sec}) = V_1$$

$$0 - (-24 \text{ m/s}) = V_1 = 24 \text{ m/s}$$

p 89 (4)

$$a) v_1 = 0 \text{ m/s (rest)}$$

$$v_2 = 4.0 \text{ m/s}$$

$$t = 2.5 \text{ seconds}$$

$$a) \begin{aligned} d &= vt \\ &= (2.0 \text{ m/s})(2.5 \text{ sec}) \end{aligned}$$

$$d = 5.0 \text{ m}$$

$$b) \begin{aligned} a &= \frac{v_2 - v_1}{t} \\ &= \frac{4.0 \text{ m/s} - 0.0 \text{ m/s}}{2.5 \text{ sec}} \end{aligned}$$

$$a = 1.6 \text{ m/s}^2$$

$$x^2 = 3x + 18$$

$$x^2 - 3x - 18 = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(-3) \pm \sqrt{(-3)^2 - 4(1)(-18)}}{2(1)}$$

$$x_1 = \frac{3+9}{2} = \frac{12}{2} = 6$$

$$x = \frac{3 \pm \sqrt{81}}{2}$$

$$x_2 = \frac{3-9}{2} = \frac{-6}{2} = -3$$

$$x = \frac{3 \pm 9}{2}$$

$$x = 6 \text{ ; } -3$$