omit #7-9

Mathematics 10 Name: Key
1.1-1.4 Assignment Block:_____ Score:_____/35

~~14~~ 13

1. Which imperial unit would you use to measure each of the following? (1/2 mark each)

a) the length of a pen inches

b) the height of a doorway ~~your~~ feet

c) the length of a classroom yards

d) the distance from Vancouver to Seattle miles

2. Which SI unit would you use to measure each of the following lengths. (1/2 mark each)

a) the width of a diamond earring mm

b) the length of a pencil cm

c) the perimeter of a classroom m

d) the distance from Burnaby to Whistler km

3. Complete each of the following conversions within the imperial system. Show your work using a conversion factor.

a) 6 ft. = 72 in. $6\text{ft} \times \frac{12\text{in}}{1\text{ft}}$

b) 4 ft. 2 in. = 50 in. $4\times12+2=50\text{in}$

c) 65 in. = 5 ft. 5 in. $65\text{in} \times \frac{1\text{ft}}{12\text{in}} = \frac{65}{12}\text{ft} = 5\frac{5}{12}$

d) 18 yd. = 54 ft. $18\text{yd} \times \frac{3\text{ft}}{1\text{yd}}$

e) 25 ft. = 8 yd. 1 ft. $25\text{ft} \times \frac{1\text{yd}}{3\text{ft}} = \frac{25}{3}\text{yd} = 8\frac{1}{3}\text{yd}$

f) 3 mi. = 5280 yd. $3\text{mi} \times \frac{1760\text{yd}}{1\text{mi}}$

4. Complete each of the following conversions within the SI system. Show your work using a conversion factor.

a) 35 mm = 3.5 cm $35\text{mm} \times \frac{1\text{cm}}{10\text{mm}}$

b) 15 m = 1500 cm $15\text{m} \times \frac{100\text{cm}}{1\text{m}}$

c) 15 km = 15 000 m $15\text{km} \times \frac{1000\text{m}}{1\text{km}}$

d) 3.2 km = 320 000 cm $3.2\text{km} \times \frac{100\,000\text{cm}}{1\text{km}}$

e) 35 000 m = 35 km $35\,000\text{m} \times \frac{1\text{km}}{1000\text{m}}$

f) 900 mm = 0.0009 km $900\text{mm} \times \frac{1\text{km}}{1\,000\,000}$

5. Complete each of the following conversions between the Imperial and SI systems. Show your work using a conversion factor. Round to 1 decimal place where appropriate.

a) 5 in. = 12.7 cm

$5\text{in} \times \frac{2.54\text{cm}}{1\text{in}}$

b) 15 cm = 5.9 in.

$15\text{cm} \times \frac{1\text{in}}{2.54\text{cm}}$

c) 18 yd. = 16.5 m

$18\text{yd} \times \frac{0.9144\text{m}}{1\text{yd}}$

d) 40 m = 43.7 yd.

$40\text{m} \times \frac{1\text{yd}}{0.9144\text{m}}$

e) 3 mi. = 4.8 km

$3\text{mi} \times \frac{1.609\text{km}}{1\text{mi}}$

f) 5 km = 3.1 mi.

$5\text{km} \times \frac{1\text{mi}}{1.609\text{km}}$

g) 5 mi. = 8045 m

$5\text{mi} \times \frac{1.609\text{km}}{1\text{mi}} = 8.045\text{km}$

h) 6 km = 19685.0 ft.

$6\text{km} = 6000\text{m} \times \frac{1\text{ft}}{0.3048\text{m}}$

6. Bob ran a 10 mile race in Washington State. That same weekend, his friend Jenny ran the Victoria half marathon, which is a 21 km long. Who ran further and by how much? Answer in kilometres.

B: $10\text{mi} \times \frac{1.609\text{km}}{1\text{mi}} = 16.09\text{km}$

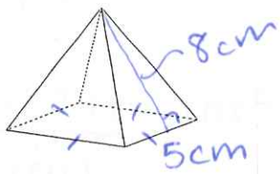
J − B = 21 − 16.09

= 4.91 km

Jenny ran 4.91 km further.

7. Determine the surface area of each of the figures shown below. (2 marks each)

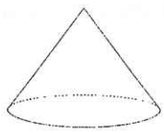
a) sides of square = 5 cm, slant height = 8 cm



$S.A. = 5^2 + 4 \times \frac{5 \times 8}{2}$

$= 105\text{cm}^2$

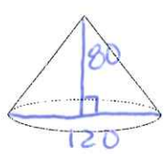
b) radius = 6 ft., slant height = 9 ft.



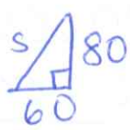
$S.A. = \pi(6)^2 + \pi(6)(9)$

$= 282.74\ \text{ft}^2$

8. Determine the lateral area of the right cone shown below if the height is 80 inches and the diameter is 120 inches. (3 marks)



$S.A. = \pi rs$



$60^2 + 80^2 = s^2$

$10\,000 = s^2$

$s = 100\text{in}$

$SA = \pi(60)(100)$

$= 18\,849.56\text{in}^2$

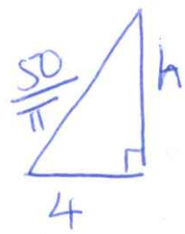
9. The lateral area of a cone is 200 cm^2. The diameter of the cone is 8 cm. Determine the height of the cone to the nearest tenth of a centimetre. (3 marks)

$r = 4\text{cm}$

$h = ?$

$200 = \pi(4)s$

$s = \frac{50}{\pi}$



$h^2 + 4^2 = \left(\frac{50}{\pi}\right)^2$

$h^2 = \left(\frac{50}{\pi}\right)^2 - 16$

$h = \sqrt{\left(\frac{50}{\pi}\right)^2 - 16}$

$h = 15.4\text{cm}$