

Name: _____

Math 10W Chapter 3.3-3.4 Assessment Quiz

*show all of your work.

1. Gretchen wants to put down laminate flooring in the living room. She measures the dimensions of the living room to be 20 ft by 15 ft. The store says the laminate will cost \$8/m². How much will it cost her to purchase the laminate required to replace the flooring in the living room?

$$20 \text{ ft} \times 15 \text{ ft} = 300 \text{ ft}^2$$

$$1 \text{ ft} = .3048 \text{ m}$$

$$1 \text{ ft}^2 = .0929 \text{ m}^2$$

$$\text{So } 300 \text{ ft}^2 \times .0929 = 27.87 \text{ m}^2$$

$$27.87 \text{ m}^2 \times \$8 = \$222.96$$

2. Frank wants to build a flower garden. The garden will measure 15 ft by 5 ft and he needs to add soil to a depth of 12 inches. Store A sells garden soil at \$15.99/yd³ while Store B sells dirt for \$18.99/m³. Assuming that Frank can only purchase whole cubic yards or metres, where should he buy the soil?

$$\text{GARDEN} = 15' \times 5' \times 1' = 75 \text{ ft}^3$$

$$\begin{aligned} \text{STORE A: } 3 \text{ ft} &= 1 \text{ yd} \\ 9 \text{ ft}^2 &= 1 \text{ yd}^2 \\ 27 \text{ ft}^3 &= 1 \text{ yd}^3 \end{aligned}$$

$$\text{So } \frac{75 \text{ ft}^3}{27 \text{ ft}^3/\text{yd}^3} = 2.78 \text{ yd}^3 \times \$15.99 = \$44.42$$

$$\begin{aligned} \text{STORE B: } 1 \text{ ft} &= .3048 \text{ m} \\ 1 \text{ ft}^2 &= .0929 \text{ m}^2 \\ 1 \text{ ft}^3 &= .0283 \text{ m}^3 \end{aligned}$$

$$\text{So } 75 \text{ ft}^3 \times .0283 \text{ m}^3/\text{ft}^3 = 2.12 \text{ m}^3 \times \$18.99 = \$40.27$$

STORE B IS CHEAPER.

3. Which of these shapes has the largest surface area?

- a cylinder with a height of $4\frac{1}{2}$ inches and a radius of $4\frac{1}{4}$ inches; or
- a rectangular prism with a length of 5 inches, a width of $4\frac{1}{2}$ inches, and a height of 4 inches; or
- a cone with a slanted side of $6\frac{1}{4}$ inches and a radius of $4\frac{1}{4}$ inches; or

Cylinder

$$S.A. = 2\pi r^2 + 2\pi r h$$

$$= 2\pi (4.25)^2 + 2\pi (4.25)(4.5)$$

$$= 233.66 \text{ in}^2$$

Rectangular Prism

$$S.A. = 2 \times l \times w + 2 \times l \times h + 2 \times w \times h$$

$$= 2 \times 5 \times 4.5 + 2 \times 5 \times 4 + 2 \times 4.5 \times 4$$

$$= 121 \text{ in}^2$$

Cone

$$S.A. = \pi r^2 + \pi r s$$

$$= \pi (4.25)^2 + \pi (4.25)(6.25)$$

$$= 140.19 \text{ in}^2$$

The cylinder has the largest surface area.

4. The gas tank of your car can hold 49 litres of gas.

You are travelling in the US and need to fill up your tank. The cost of gas is \$3.49/gallon. How much will it cost you to fill up, assuming the tank is completely empty?

$$1 \text{ L} = 0.26 \text{ gallons}$$

$$49 \text{ L} = 0.26 \times 49 = 12.74 \text{ gallons}$$

$$12.74 \text{ g} \times \$3.49/\text{g} = \$44.46$$