



Sample: Geometry - Areas and Volumes

1. Area of the rectangle equals:

$$= a * b = 19 * 7 \text{ feet}^2 = 133 \text{ feet}^2$$

2. Perimeter of the square equals:

$$P = 4a = 4 * 115 \text{ m} = 460 \text{ m}$$

3. Area of the rectangle equals:

$$= a * b$$

Therefore, length of side equals:

$$a = \frac{224}{b} = \frac{224}{12} \text{ cm} = \frac{56}{3} \cong 18.7 \text{ cm}$$

4. 1 foot = 12 inch

$$36 \text{ in} = 3 \text{ ft}$$

$$72 \text{ in} = 6 \text{ ft}$$

Area of 1 fiberglass equals:

$$A_1 = 3 * 6 \text{ ft}^2 = 18 \text{ ft}^2$$

Numbers of fiberglass's:

$$N = \frac{126}{18} = 7$$

5. Pythagorean theorem:

$$a^2 + b^2 = c^2$$

$$a = \sqrt{c^2 - b^2} = 4\sqrt{3}''$$

6. Pythagorean theorem:

$$a^2 + b^2 = c^2$$

$$c = \sqrt{a^2 + b^2} = \sqrt{74}'$$

7. Triangles are similar, therefore:

$$\frac{x}{80} = \frac{6}{4}$$

$$x = 80 * \frac{6}{4} = 120 \text{ feet}$$

8. R=20

a) $= \pi r^2 = 1257 \text{ cm}^2$

b) $l = 2\pi r = 126 \text{ cm}$

- 9.

- a) Area equals:

$$A = \sqrt{(p-a)(p-b)(p-c)}$$

where $p = \frac{1}{2}(a+b+c) = \frac{1}{2}(8+8+4) = 10$

$$A = \sqrt{2 * 2 * 4} = 4$$

- b) Perimeter equals:

$$P = (a+b+c) = (8+8+4) = 20$$

- 10.

- a) Volume equals:



$$= abc = 5 * 8 * 10 = 400 \text{ ft}^3$$

b) Surface area equals:

$$S = 2(ab + bc + ac) = 2(10 * 8 + 10 * 5 + 5 * 8) = 340 \text{ ft}^2$$

11. Volume of cylinder equals:

$$= \pi \left(\frac{d}{2}\right)^2 h = 3.14 \left(\frac{40}{2}\right)^2 * 45 = 56549 \text{ m}^3$$

12.

a) circumference of the cylinder equals:

$$l = \pi d$$

lateral surface area equals:

$$A_l = \pi d * h = 1319 \text{ ft}^2$$

b) Total surface area equals:

$$A = A_l + 2 \pi \left(\frac{d}{2}\right)^2 = 1398 \text{ ft}^2$$

c) Volume of cylinder equals:

$$= \pi \left(\frac{d}{2}\right)^2 h = 3299 \text{ ft}^3$$

13.

a) the area of trapezium equals:

$$S = \frac{1}{2}(a + b)h = \frac{1}{2}(12 + 6)3 = 27 \text{ ft}^2$$

Volume equals:

$$= S * l = 27 * 24 = 648 \text{ ft}^3$$

b) using Pythagorean theorem y equals:

$$y = \sqrt{3^2 + 3^2} = 3\sqrt{2} \text{ ft}$$