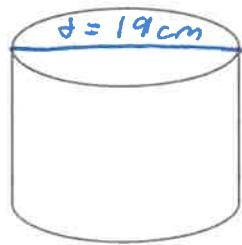


3.3 Surface Area of a Cylinder, Cone & Sphere Notes

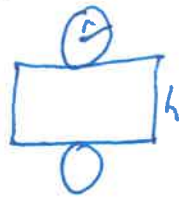
Surface Area of a Cylinder

$$d \div 2 = r$$

$$19 \div 2 = 9.5 \text{ cm} = r$$



$$h = 17 \text{ cm}$$



$$SA = 2\pi r^2 + 2\pi rh$$

$$(0 + 0) + \boxed{}$$

2 circles one rectangle (sides)

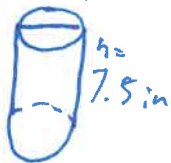
$$SA = 2\pi (9.5)^2 + 2\pi (9.5)(17)$$

$$SA = 1,581.79 \text{ cm}^2$$

Show you know

A cannery has redesigned the size of the can for its canned salmon. The diameter of the new can is 4" and its height is 7.5". How much tin will be needed to construct one can?

$$d = 4''$$



$$r = 2''$$

$$4 \text{ in} \div 2 = 2 \text{ in}$$

$$SA = 2\pi r^2 + 2\pi rh$$

$$SA = 2\pi (2)^2 + 2\pi (2)(7.5)$$

$$SA = 119.38 \text{ in}^2$$

Ex 2

Betty Crocker is making a new non-stick cake pan. The cake pan will have a diameter of 25 cm and a height of 7 cm. How much tin is needed to make the cake pan?



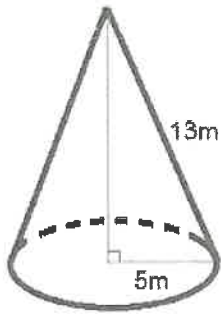
$$r = 12.5 \text{ cm}$$

$$SA = \cancel{2}\pi r^2 + 2\pi rh$$

$$SA = \pi (12.5)^2 + 2\pi (12.5)(7)$$

$$SA = 1,040.65 \text{ cm}^2$$

Surface Area of a Cone



$$SA = \pi r^2 + \pi r s$$

$$SA = \pi (5)^2 + \pi (5)(13)$$

$$SA = 282.74 \text{ m}^2$$

Show you know

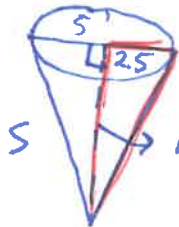
Fred manufactures and sells farm implements in Winkler, MB. One piece of equipment that he sells is a 3-point spreader that attaches to a tractor to spread grass seed, wheat seed, or fertilizer. The hopper is a cone with a diameter of 60" and vertical height of 120". How many square feet of plastic is needed to form one hopper? (hint: it doesn't have a top!)



$$60'' = 5'$$

$$120'' = 10 \text{ ft}$$

$$r = 2.5'$$



$$SA = \cancel{\pi r^2} + \pi r s$$

$$SA = \pi (2.5) (10.3078)$$

$$SA = 80.96 \text{ ft}^2$$

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

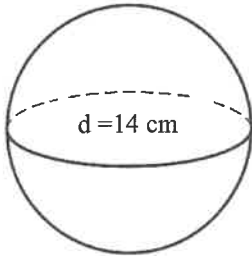
$$2.5^2 + 10^2 = c^2$$

$$6.25 + 100 = c^2$$

$$\sqrt{106.25} = \sqrt{c^2}$$

$$10.3078 = c$$

$$s = 10.3078 \text{ ft}$$

Surface Area of a Sphere

$$d = 14$$

$$14 \div 2 = 7$$

$$r = 7 \text{ cm}$$

$$SA = 4 \pi r^2$$

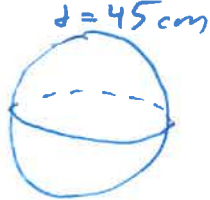
$$SA = 4 \pi (7)^2$$

$$SA = 615.75 \text{ cm}^2$$

Show you know

A company wants to design and produce a new beach ball that is puncture proof. The designer has come up with a new ball that has a diameter of 45cm.

- a. How much material will it take to produce the new beach ball?



$$r = 22.5 \text{ cm}$$

$$SA = 4 \pi r^2$$

$$SA = 4 \pi (22.5)^2$$

$$SA = 6361.73 \text{ cm}^2$$

- b. If the new material is worth \$0.00054 per square centimeter. How much will it cost to produce the new ball?

$$\frac{\$0.00054}{1 \text{ cm}^2} = \frac{x}{6361.73 \text{ cm}^2}$$

$$x = \$3.44$$

