Assignment 3.1 (Surface Area) Name_____

Convert the followng units

1) 6 feet into inches

$6\text{ft} \times \frac{12\text{ in}}{1\text{ ft}} = \boxed{72\text{"}}$

2) 14 feet into yards

$14\text{ft} \times \frac{1\text{ y}}{3\text{ ft}} = \boxed{4.67\text{y}}$

3) 7000 yards into miles

$7000\text{y} \times \frac{1\text{ mi}}{1760\text{ y}} = \boxed{3.98\text{mi}}$

4) 3.4 miles into feet

$3.4\text{mi} \times \frac{5280\text{ ft}}{1\text{ mi}}$

$\boxed{17952\text{ft}}$

5) 200 inches into yards, feet, and inches

$200\text{in} \times \frac{1\text{ y}}{36\text{ in}} = 5.55$

$0.55\text{y} \times \frac{3\text{ ft}}{1\text{ y}} = 1.67$

$.67\text{ft} \times \frac{12\text{ in}}{1\text{ ft}} = 8$

$\boxed{5\text{y},1\text{ft},8\text{in}}$

6) 16 ft into metres

$16\text{ft} \times \frac{.3048\text{m}}{1\text{ ft}} = \boxed{4.88\text{m}}$

7) 13 kilometres into miles

$13\text{km} \times \frac{1\text{ mi}}{1.609\text{ km}}$

$\boxed{8.08\text{mi}}$

8) 60cm into inches

$60\text{cm} \times \frac{1\text{ in}}{2.54\text{ cm}}$

$\boxed{23.62\text{ in}}$

9) 400 inches into metres

$400\text{in} \times \frac{1\text{ y}}{36\text{ in}} \times \frac{.9144\text{ m}}{1\text{ y}}$

$\boxed{10.16\text{m}}$

10) 6200 metres into miles

$6200\text{m} \times \frac{1\text{ km}}{1000\text{ m}} \times \frac{1\text{ mi}}{1.609\text{km}}$

$\boxed{3.85\text{mi}}$

11) 5 square yards into square feet

$5\text{y}^2 \times \frac{3^2\text{ ft}^2}{1^2\text{ y}^2} = 5 \times 9$

$= \boxed{45\text{ft}^2}$

12) 1 000 000 sq yards into square miles

$1000000\text{y}^2 \times \frac{1^2\text{ mi}^2}{1760^2\text{y}^2} = \boxed{0.32\text{mi}^2}$

13) 800 square feet into square metres

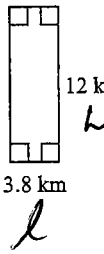
$800\text{ft}^2 \times \frac{.3048^2\text{m}^2}{1^2\text{ ft}^2} = \boxed{74.3\text{m}^2}$

14) 2 km^2 into square yards

$2\text{km}^2 \times \frac{1000^2\text{ m}^2}{1^2\text{ km}^2} \times \frac{1760^2\text{y}^2}{1^2\text{mi}^2} = 6.2 \times 10^{12}\text{y}^2$ or $6,200,000,000,000\text{y}^2$

Find the area of each.

15)

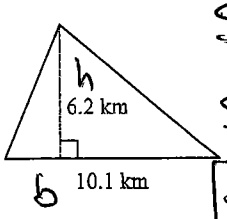


$SA = lw$

$SA = 3.8 \times 12$

$SA = 45.6 km^2$

16)

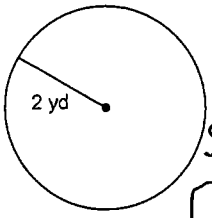


$SA = \frac{1}{2}bh$

$SA = \frac{1}{2}(10.1 \times 6.2)$

$SA = 31.3 km^2$

17)



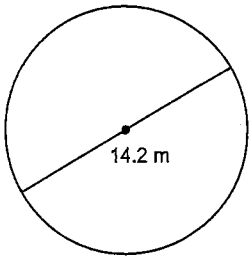
$SA = \pi r^2$

$SA = \pi(2)^2$

$SA = \pi(4)$

$SA = 12.6 yd^2$

18)



$SA = \pi r^2$

$SA = \pi(\frac{D}{2})^2$

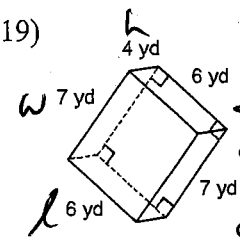
$SA = \pi(\frac{14.2}{2})^2$

$SA = \pi(7.1)^2$

$SA = 158.4 m^2$

Find the surface area of each figure. Round your answers to the nearest hundredth, if necessary.

19)



$SA = 2lw + 2wh + 2lh$

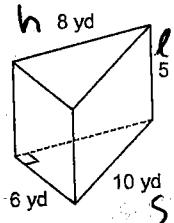
$SA = 2(6.7) + 2(7.4) + 2(6.4)$

$SA = 2(42) + 2(28) + 2(24)$

$SA = 84 + 56 + 48$

$SA = 188 yd^2$

20)



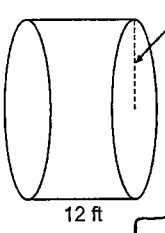
$SA = 2(\frac{1}{2}bh) + lh + bl + ls$

$SA = (6.8) + (8.5) + (6.5) + (10.5)$

$SA = 48 + 40 + 30 + 50$

$SA = 168 yd^2$

21)



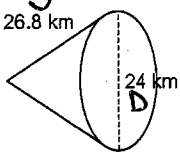
$SA = 2\pi r^2 + 2\pi rh$

$SA = 2\pi(10)^2 + 2\pi(10)(12)$

$SA = 628.3 + 753.98$

$SA = 1382.3 \text{ ft}^2$

22)



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

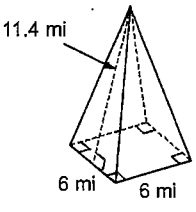
$SA = \pi\left(\frac{D}{2}\right)^2 + \pi\left(\frac{D}{2}\right)(s)$

$SA = \pi\left(\frac{24}{2}\right)^2 + \pi\left(\frac{24}{2}\right)(26.8)$

$SA = 452.4 + 1010.34$

$SA = 1462.7 \text{ cm}^2$

23)



$SA = \frac{4bh}{2} + b^2$

$SA = 2(6 \cdot 11.4) + (6)^2$

$SA = 136.8 + 36$

$SA = 172.8 \text{ mi}^2$

24) Fabric costs $2.89 per foot. Determine the cost of 6 yards of fabric.

$\frac{2.89}{ft} \times \frac{3 \text{ ft}}{1 \text{ yd}} = \$8.67/\text{yd} \times 6 = \$52.02$

25) Drainage piping costs $0.69 per foot. Determine the cost for 8 metres.

$\frac{\$.69}{ft} \times \frac{1 \text{ ft}}{.3048 \text{ m}} \times 8 = \$18.17$

26) Jimmy needs to put base boards up around his room. The room is 12' x 10'. The door is 3' wide.

a. Determine the amount of base board that is needed.

$12+12+10+10-3 = 41'$

b. The base board costs $2.89 per foot. Determine the cost.

$41 \times 2.89 = \$118.49$

27) Jimmy needs to put base boards up around his room. The room is 14'8" x 11'5. The door is 3' wide.

a. Determine the amount of base board, in feet and inches, that is needed.

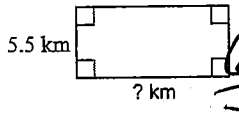
14'8" + 14'8" + 11'5" + 11'5" = 50'26" = 52'2" minus 3' door = 49'2"

b. The base board costs $2.89 per foot. You cannot buy a fraction of a foot. Determine the cost.

$2.89 \times 50' = \$144.50$

Find the missing measurement. Round your answer to the nearest tenth.

28)



Area = 66 km²

$SA = lw$

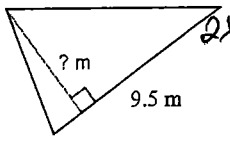
$66 = l(5.5)$

$\frac{66}{5.5} = \frac{l(5.5)}{5.5}$

$12 = l$

$12 \text{ km} = l$

29)



Area = 27.6 m²

$SA = \frac{1}{2}bh$

$27.6 = \frac{1}{2}(9.5 \cdot h)$ (×2)

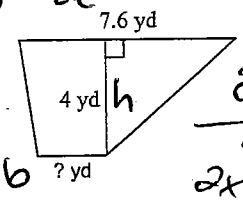
$55.2 = 9.5h$

$\frac{55.2}{9.5} = \frac{9.5h}{9.5}$

$5.81 \text{ m} = h$

Find the missing measurement. **Find the radius for the circle with the given area.**

30)



Area = 20 yd²

$SA = \left(\frac{a+b}{2}\right)h$

$20 = \left(\frac{7.6+b}{2}\right)(4)$

$\frac{20}{4} = \frac{\left(\frac{7.6+b}{2}\right)(4)}{4}$

$5 = \frac{7.6+b}{2}$ (×2)

$10 = 7.6 + b$

$-7.6 \quad -7.6$

$2.4 = b$

31) area = 201.1 in²

$SA = \pi r^2$

$\frac{201.1}{\pi} = \frac{\pi r^2}{\pi}$

$64.01 = r^2$

$8 \text{ in} = r$