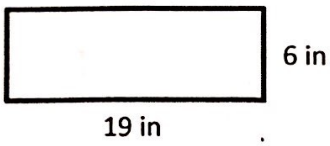
Name: KEY

Practice: Area, Perimeter, Circumference

Calculators ARE allowed, but <u>you must show all work</u> – even what you type into the calculator!

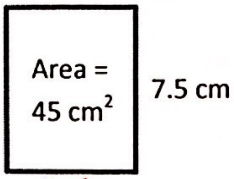
1) Find the area AND perimeter.



$P = 2(19) + 2(6)$
$P = 38 + 12$
$\boxed{P = 50 \text{ in}}$

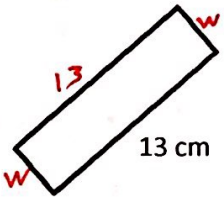
$A = 19 \cdot 6$
$\boxed{A = 114 \text{ in}^2}$

2) Find the length.



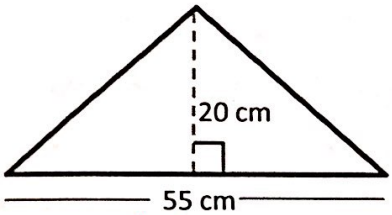
$A = l \cdot w$
$\frac{45}{7.5} = \frac{l \cdot 7.5}{7.5}$
$6 = l$
$\boxed{l = 6\text{cm}}$

3) The perimeter is 36 ft. Find the width.



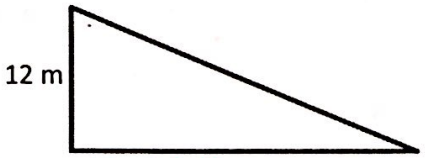
$2w + 26 = 36$
$\quad -26 \quad -26$
$\frac{2w}{2} = \frac{10}{2}$
$\boxed{w = 5\text{cm}}$

4) Find the area.



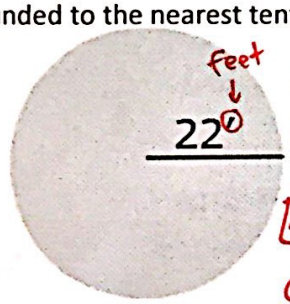
$A = \frac{1}{2} \cdot 55 \cdot 20$
$\boxed{A = 550\text{cm}^2}$

5) The area is 96 m^2. Find the base.



$A = \frac{1}{2} \cdot b \cdot h$
$96 = \frac{1}{2} \cdot b \cdot 12$
$\frac{96}{6} = \frac{6 \cdot b}{6}$
$\boxed{b = 16\text{m}}$

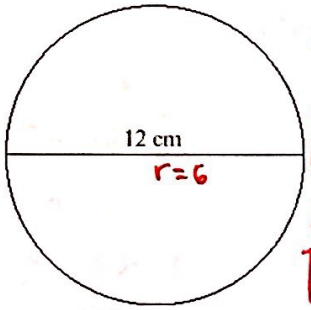
6) Find the area AND circumference. Write your answers as decimals rounded to the nearest tenth.



$A = \pi r^2$
$A = \pi \cdot 22^2$
$A = 484\pi$
$\boxed{A \approx 1520.5 \text{ ft}^2}$

$C = 2\pi r$
$C = 2\pi \cdot 22$
$C = 44\pi$
$\boxed{C \approx 138.2 \text{ ft}}$

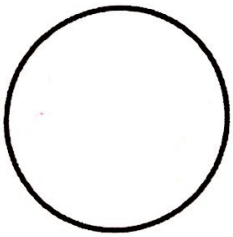
7) Find the area AND circumference. Write <u>exact answers</u>. (Leave pi in the answers.)



$A = \pi r^2$
$A = \pi \cdot 6^2$
$\boxed{A = 36\pi \text{ cm}^2}$

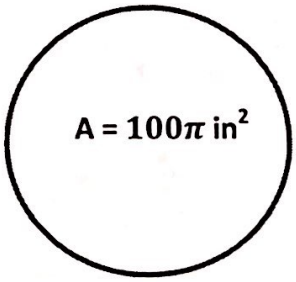
$C = \pi d$
$\boxed{C = 12\pi \text{ cm}}$

8) The circumference of the circle is 72π mm. Find the radius.



$C = 2\pi r$
$\frac{72\pi}{\pi} = \frac{2\pi r}{\pi}$
$\frac{72}{2} = \frac{2r}{2}$
$36 = r$
$\boxed{r = 36\text{mm}}$

9) The area of the circle is 100π in^2. Find the circumference.

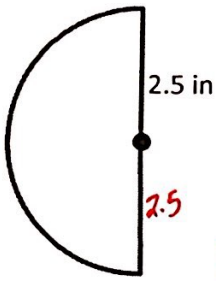


$A = \pi r^2$
$\frac{100\pi}{\pi} = \frac{\pi r^2}{\pi}$
$100 = r^2$
$10 = r$

$C = 2\pi r$
$C = 2\pi \cdot 10$
$\boxed{C = 20\pi \text{ in} \text{ or } C \approx 62.8 \text{ in}}$

(More on the back!)

10) Find the area and perimeter of this semicircle. The radius is 2.5 in.



$A = (\pi r^2) \div 2$

$A = (\pi \cdot 2.5^2) \div 2$

$A \approx (19.635) \div 2$

$\boxed{A \approx 9.8 \text{ in}^2}$

Curved part

$P = (2\pi r) \div 2 + 5$

Straight Part

$P = (2\pi \cdot 2.5) \div 2 + 5$

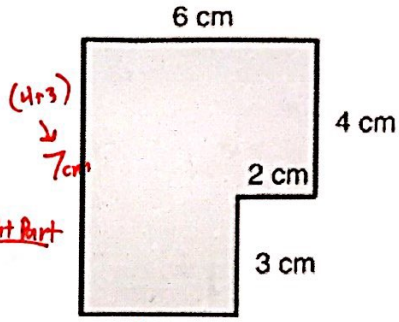
$P = (5\pi) \div 2 + 5$

$P = 2.5\pi + 5$

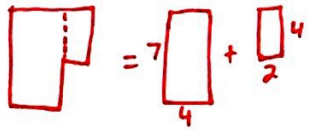
$P \approx 7.9 + 5$

$\boxed{P \approx 12.9 \text{ in}}$

11) Find the area of the figure TWO different ways.



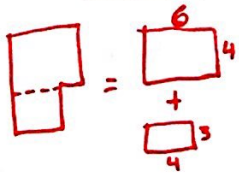
Method 1



$A = 28 + 8$

$\boxed{A = 36 \text{cm}^2}$

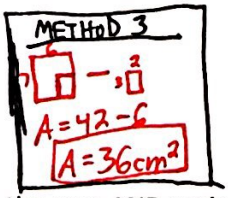
Method 2



$A = 24 + 12$

$\boxed{A = 36 \text{cm}^2}$

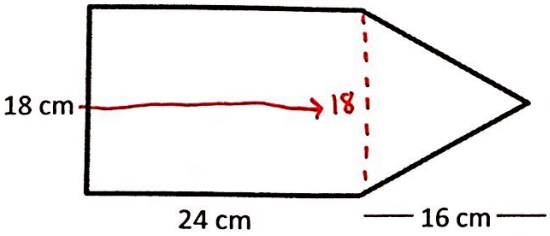
METHOD 3



$A = 42 - 6$

$\boxed{A = 36 \text{cm}^2}$

12) Find the area.



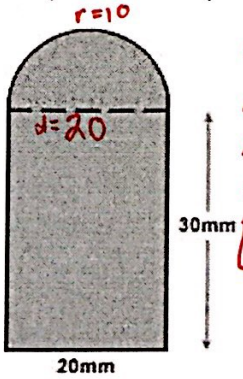
A = Rect + Tri

$A = 18 \cdot 24 + \frac{1}{2} \cdot 18 \cdot 16$

$A = 432 + 144$

$\boxed{A = 576 \text{cm}^2}$

13) Find the area AND perimeter of the figure. Assume the top section is a perfect semicircle (half-circle).



$A = \text{rect} + \frac{1}{2}\text{circle}$

$A = 30 \cdot 20 + \frac{1}{2}(\pi \cdot 10^2)$

$A = 600 + \frac{1}{2}(100\pi)$

$A = 600 + 50\pi$

$\boxed{A \approx 757.1 \text{mm}^2}$

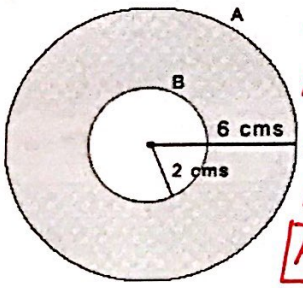
$C = 30 + 20 + 30 + \frac{1}{2}\text{Cir}$

$C = 80 + \frac{1}{2}(20 \cdot \pi)$

$C = 80 + 10\pi$

$\boxed{C \approx 111.4 \text{mm}}$

14) Find the area of the shaded section.



A = Circle − Circle

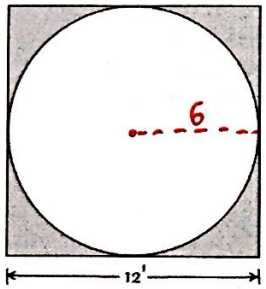
$A = \pi \cdot 6^2 - \pi \cdot 2^2$

$A = 36\pi - 4\pi$

$A = 32\pi$

$\boxed{A \approx 100.5 \text{cm}^2}$

15) Find the area of the shaded section.



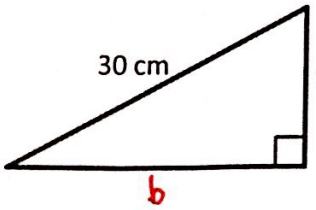
Area = Square − Circle

$\text{Area} = 12 \cdot 12 - \pi \cdot 6^2$

$A = 144 - 36\pi$

$\boxed{A \approx 30.9 \text{ ft}^2}$

16) Find the area and perimeter.



$18^2 + b^2 = 30^2$

$324 + b^2 = 900$

$b^2 = 576$

$b = 24$

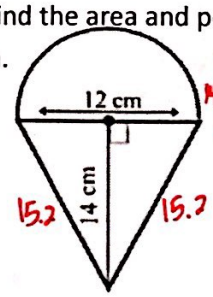
$A = \frac{1}{2} \cdot 24 \cdot 18$

$\boxed{A = 216 \text{cm}^2}$

$P = 24 + 18 + 30$

$\boxed{P = 72 \text{cm}}$

17) Find the area and perimeter. Round to the nearest tenth.



$14^2 + 6^2 = x^2$

$196 + 36 = x^2$

$232 = x^2$

$x \approx 15.2$

$A = \frac{1}{2}\text{circle} + \text{Tri}$

$A = \frac{1}{2}(\pi \cdot 6^2) + \frac{1}{2} \cdot 12 \cdot 14$

$A = \frac{1}{2}(36\pi) + 84$

$\boxed{A \approx 140.5 \text{cm}^2}$

$P \approx \frac{1}{2}\text{Circle} + 15.2 + 15.2$

$P \approx \frac{1}{2}(12\pi) + 30.4$

$P \approx 6\pi + 30.4$

$\boxed{P \approx 49.2 \text{cm}}$