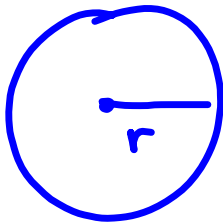# Area and Perimeter

Area and Perimeter

Find perimeter and <u>area</u> of the following figures:

1. Three circles with radii of 3 feet, 4 feet, and 5 feet. Show your
    work (formula and calculations). Make sure to include units.

$$C = \pi \cdot d = \pi \cdot 2 \cdot r$$
$$= \pi \cdot 2 \cdot 3ft = 18.85\ ft$$
$$C = \pi \cdot 2 \cdot r = \pi \cdot 2 \cdot 4ft = 25.13\ \underline{ft}$$
$$C = \pi \cdot 2 \cdot r = \pi \cdot 2 \cdot 5ft = 31.42\ ft$$

$$d = 2 \cdot r$$
$$r = \frac{d}{2}$$

$$A = \pi r^2 = \pi r \cdot r = \pi (3ft)(3ft)$$
$$= 28.27\ ft \cdot ft = 28.27\ ft^2$$
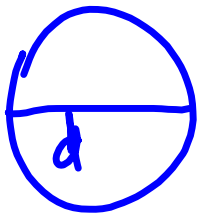$$A = \pi r \cdot r = \pi \cdot (4ft)(4ft) = 50.27 ft^2$$

Area and Perimeter

Find perimeter and area of the following figures:

2. Circles with diameters of 6 inches, and 12 inches. Show your work (formula and calculations). Make sure to include units.

$$C = \pi d = \pi\, 6in = 18.85\, in$$

$$C = \pi d = \pi\, 12in = 37.70\, in$$

$$d = 2r$$

$$r = \frac{d}{2}$$
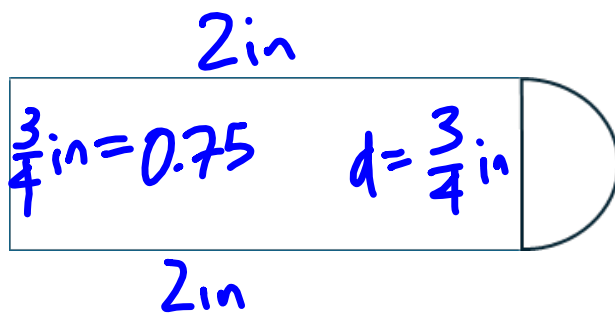
$$A = \pi r^2 = \pi r \cdot r = \pi\left(\frac{d}{2}\right)\left(\frac{d}{2}\right)$$

$$= \pi\left(\frac{6in}{2}\right)\left(\frac{6in}{2}\right) = 28.27\; in \cdot in$$

$$in^2$$

$$A = \pi r^2 = \pi\left(\frac{d}{2}\frac{d}{2}\right) = \pi\left(\frac{12in}{2}\frac{12in}{2}\right) = 113.0\; in^2$$

Area and Perimeter

3. Use a scale or ruler to measure the sides (and height) of the
figure, then find the perimeter and area. Draw on the figure to show
what you use as your heights, bases, etc.

$$\frac{C}{2} = \frac{\pi d}{2} = \frac{\pi(0.75 \text{ in})}{2}$$

$$= 1.178 \text{ in}$$

2 in

$\frac{3}{4}$ in $= 0.75$ $d = \frac{3}{4}$ in $\frac{C}{2}$

$$P = S_1 + S_2 + S_3 + \frac{C}{2}$$

2 in

$$= 2 \text{ in} + \frac{3}{4} \text{ in} + 2 \text{ in} + 1.178 \text{ in}$$

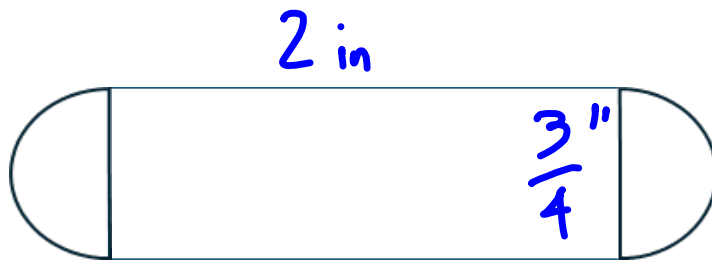$$A = A_R + \frac{A_C}{2} = 1.5 \text{ in}^2 + 0.22 \text{ in}^2 \quad = 5.928 \text{ in}$$

$$A_R = b \cdot h = (2 \text{ in})(0.75 \text{ in}) = 1.5 \text{ in}^2$$

$$A_C = \pi r \cdot r = \pi \frac{d}{2} \frac{d}{2} = \pi \frac{0.75 \text{ in}}{2} \frac{0.75 \text{ in}}{2}$$

$$1.72 \text{ in}^2$$

$$= 0.44 \text{ in}^2$$

$$\frac{A_C}{2} = \frac{0.44 \text{ in}^2}{2} = 0.22 \text{ in}^2$$

Area and Perimeter

4. Use a scale or ruler to measure the sides (and height) of the figure, then find the perimeter and area. Draw on the figure to show what you use as your heights, bases, etc.

2 in

$\frac{3}{4}''$

$P = C + 2_{in} + 2_{in}$

$C = \pi \cdot d = \pi \cdot (0.75_{in})$

$= 2.356_{in}$

$P = 2.356_{in} + 2_{in} + 2_{in}$

$= 6.356 \, in$

$A = A_c + A_R = 1.767 \, in^2 + 1.5 \, in^2$

$A_c = \pi r r = \pi (.75_{in})(.75_{in})$

$= 1.767 \, in^2$

$3.267 \, in^2$

$A_R = b \cdot h = 2_{in}(.75_{in})$

$= 1.5 \, in^2$

Area and Perimeter

5. Use a scale or ruler to measure the necessary parts of the figure, then find the perimeter and area. Draw on the figure to show what you use as your measurements.
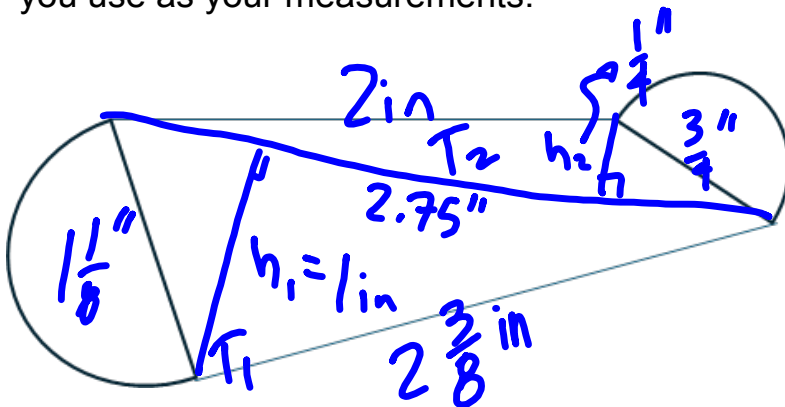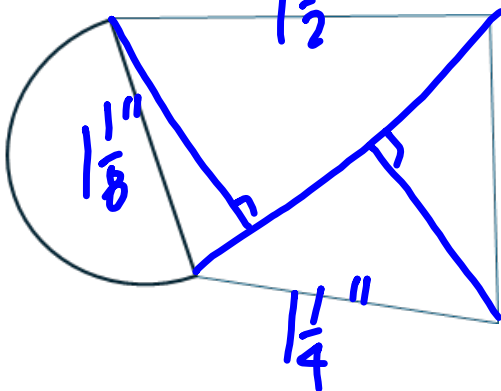
$$A_{T1} = \frac{bh_1}{2}$$

$$A_{T2} = \frac{bh_2}{2}$$

2 in

$5 \frac{1}{4}"$

T_2 h_2

$3 \frac{3}{4}"$

2.75"

$1 \frac{1}{8}"$

$h_1 = 1$ in

T_1

$2 \frac{3}{8}$ in

Area and Perimeter

Use a scale or ruler to measure the sides (and height) of the figure, then find the perimeter and area. Draw on the figure to show what you use as your heights, bases, etc.

$$P = \frac{C}{2} + 1\frac{1}{2}'' + 1\frac{1}{4}'' + 1\frac{1}{4}''$$

$$1\frac{1}{4}'' \quad C = \pi \cdot d = \pi r \cdot 2$$
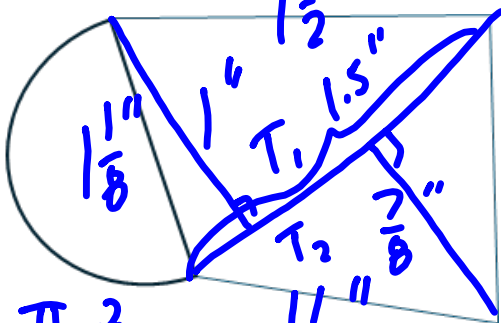
$$= \pi (1.125'') = 3.53 \text{ in}$$

$$P = \frac{3.53 \text{ in}}{2} + 1.5'' + 1.25'' + 1.25''$$

$$= 5.767 \text{ in}$$

$1\frac{1}{2}''$

$1\frac{1}{8}''$

$1\frac{1}{4}''$

Area and Perimeter

$$r = \frac{d}{2} = \frac{1.125''}{2} = .5625\ in$$

Use a scale or ruler to measure the sides (and height) of the figure, then find the perimeter and area. Draw on the figure to show what you use as your heights, bases, etc.

$1\frac{1}{2}''$

6

$1.5''$

$1''$

T_1

$1\frac{1}{8}''$

$1\frac{1}{4}''$

T_2 $\frac{7}{8}''$

$1\frac{1}{4}''$

$$A = A_{T1} + A_{T2} + \frac{A_c}{2}$$

$$A_{T1} = \frac{bh_1}{2} = \frac{1.5'' \times 1''}{2} = .75\ in^2$$
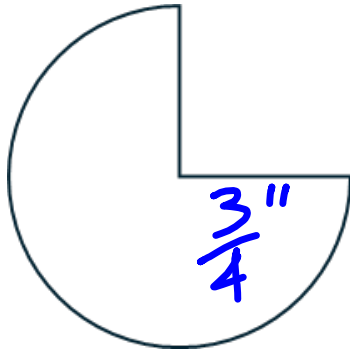
$$A_{T2} = \frac{bh_2}{2} = \frac{1.5'' \cdot 0.875\ in}{2}$$

$$= 0.656\ in^2$$

$$A = 0.75\ in^2 + 0.656\ in^2 + \frac{.994\ in^2}{2}$$

$$A_c = \pi r^2$$

$$= \pi (.5625\ in)^2$$

$$= \pi (.316\ in^2) = 0.994\ in^2 \quad = 1.903\ in^2$$

Area and Perimeter

Use a scale or ruler to measure the necessary measurements of the figure (3/4 circle), then find the perimeter and area.

$$P = C \cdot .75 + r + r$$

$$C = \pi 2r = \pi 2 \times .75_{in} = 4.712_{in}$$

$$P = (.75)C + r + r$$
$$= (.75)4.712_{in} + 0.75_{in} + 0.75_{in}$$
$$\underbrace{\phantom{=(.75)4.712_{in}}}_{3.53_{in}}$$
$$= 5.03 \text{ in}$$

$$A = A_c \cdot 0.75$$

$$A_c = \pi r^2 = \pi (.75_{in})(.75_{in}) = 1.767_{in}^2$$

$$A = 1.767_{in}^2 \cdot (.75) = 1.325_{in}^2$$

$$\frac{3''}{4}$$

Area and Perimeter

Use a scale or ruler to measure the sides necessary measurements of the figure (quarter circle), then find the perimeter and area. Draw on the figure to show what you use as your heights, bases, etc.
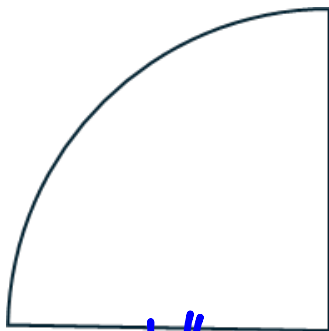
$$P = \frac{C}{4} + r + r$$

$$C = \pi \cdot d = \pi \, r \cdot 2 = \pi \cdot 1.25\text{in} \cdot 2 = 7.85\text{in}$$

$$r = 1\tfrac{1}{4}{''}$$

$$P = \frac{7.85\text{in}}{4} + 1.25\text{in} + 1.25\text{in} = 4.46\text{in}$$

$$1.96\text{in}$$

$$A = \frac{A_c}{4} = \frac{4.91\text{in}^2}{4} = 1.227\text{in}^2$$

$$A_c = \pi r^2 = \pi (1.25\text{in})(1.25\text{in}) = 4.91 \text{ in}^2$$