STATION 1
Find the exact area of shaded region.
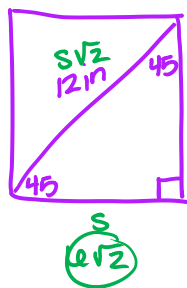
500 m

300 m

500 m

400

510 m

300 m
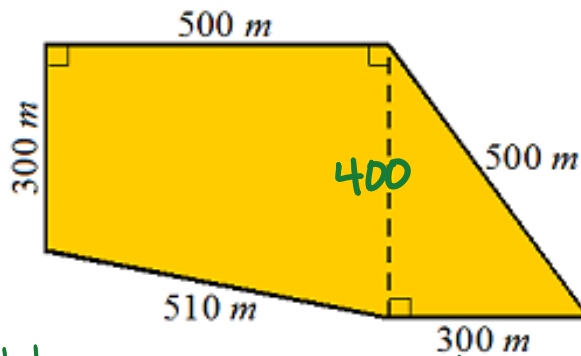
1st $A_{Trap} = \frac{b_1 + b_2}{2} \cdot h$

$= \frac{300 + 400}{2} \cdot 500$

$= \frac{700}{2} \cdot 500$

$= 350 \cdot 500$

$= 175,000 \text{ m}^2$

2nd $A_\triangle = \frac{b \cdot h}{2}$

$= \frac{300 \cdot 400}{2}$

$= 60,000 \text{ m}^2$

3rd $A_F = 175,000 + 60,000$

$\boxed{A_F = 235,000 \text{ m}^2}$

STATION 2
If a diagonal of a square is 12 inches, find the area. *(10.1)*

$s\sqrt{2}$
12 in
45

45

s (6√2)

s
(6√2)

$12 = s\sqrt{2}$

$s = \frac{12}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$

$s = \frac{12\sqrt{2}}{2} = 6\sqrt{2}$

$A = s^2$

$A = (6\sqrt{2})^2 = 36 \cdot 2 = \boxed{72 \text{ in}^2}$

STATION 3
Betty Crocker is making cookies that are perfectly circular in shape with diameter of 6 cm. Betty wants to frost the entire top of the circular cookie. How much frosting will she need to cover it? *(10.2)*
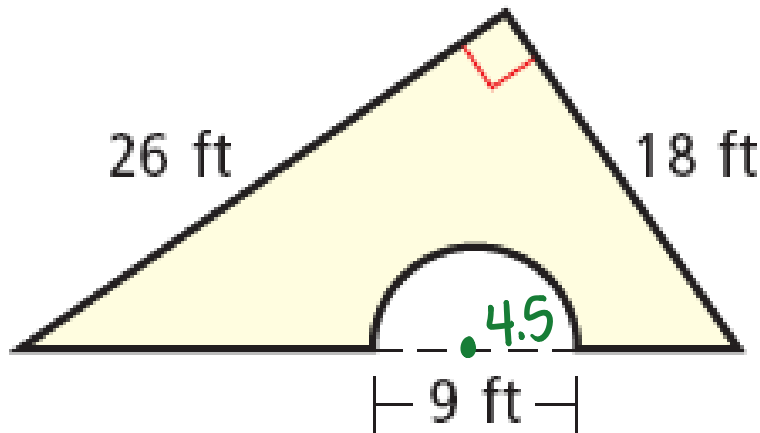
$A_\circ = \pi r^2$

$r = 3$

$A = \pi (3)^2$

$\boxed{A = 9\pi \text{ cm}^2}$ or about 28.27 cm²
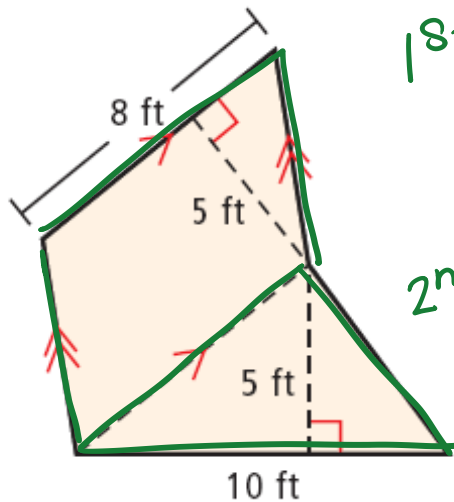
STATION 4

Find the exact area of shaded region.

26 ft   18 ft

.4.5

⊢ 9 ft ⊣

1st $A_\triangle = \dfrac{b \cdot h}{2}$

$= \dfrac{18 \cdot 26}{2}$

$= 234 \, ft^2$

2nd $A_{SO} = \dfrac{\pi r^2}{2}$

$= \dfrac{\pi (4.5)^2}{2}$

$= 10.125\pi \, ft^2$

3rd $A_F = A_\triangle - A_{SO}$

$\boxed{A_F = (234 + 10.125\pi) \, ft^2}$

STATION 5

Find the exact area of shaded region.

8 ft

5 ft

5 ft

10 ft

1st $A_\square = b \cdot h$

$= 8 \cdot 5$

$= 40 \, ft^2$

2nd $A_\triangle = \dfrac{b \cdot h}{2}$

$= \dfrac{10 \cdot 5}{2}$

$= 25 \, ft^2$

3rd $A_F = A_\square + A_\triangle$

$= 40 + 25$

$\boxed{A_F = 65 \, ft^2}$

STATION 6

Find the exact area of shaded region.
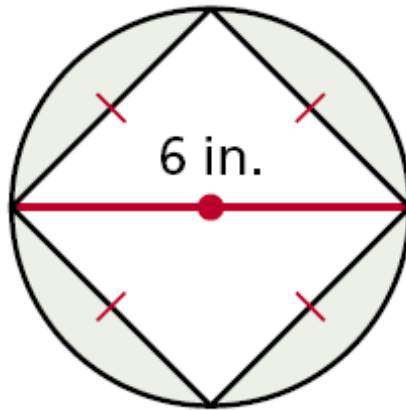
1st $A_O = \pi r^2$
$= \pi(3)^2$
$= 9\pi \text{ in}^2$

2nd $A_\square = \dfrac{d_1 \cdot d_2}{2}$
$= \dfrac{6 \cdot 6}{2}$
$= 18 \text{ in}^2$

3rd $A_F = A_O - A_\square$

$\boxed{A_F = (9\pi - 18) \text{ in}^2}$

STATION 7

A company receives an order for 65 pieces of fabric in the given shape.
Each piece is to be dyed red. To dye 6 in² of fabric, 2 oz of dye is needed.
How much dye is needed for the entire order?

1st $A_\square = s^2$
$= 3^2$
$= 9 \text{ in}^2$

2nd $A_O = \pi r^2$
$= \pi(1.5)^2$
$= 2.25\pi \text{ in}^2$

3rd $A_\heartsuit = A_\square + A_O$
$= 9 + 2.25\pi$
$\approx 16.1 \text{ in}^2$

3 in.   3 in.

3 in   3 in
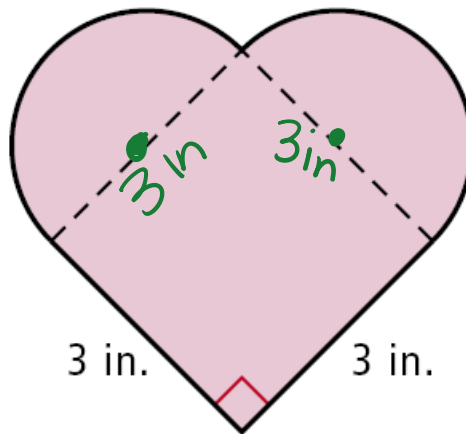
4th 1 piece $= 16.1 \text{ in}^2$
65 pieces : $65(16.1)$
$= 1046.5 \text{ in}^2$

5th $\dfrac{6 \text{ in}^2}{2 \text{ oz}} = \dfrac{1046.5 \text{ in}^2}{x}$

$6x = 2093$

$\boxed{x \approx 348 \text{ oz are} \\ \text{needed for} \\ \text{the entire order}}$

STATION 8

Use a composite figure to estimate the shaded area.
The grid has squares with side lengths of 1 ft.

Between
13 and 13.5 ft²

(grid with numbered cells: 13, 8, 11, 11, 6, 7, 12, 12, 5, 4, 13, 3, 2, 1, 10, 9, 10)

STATION 9

n=5
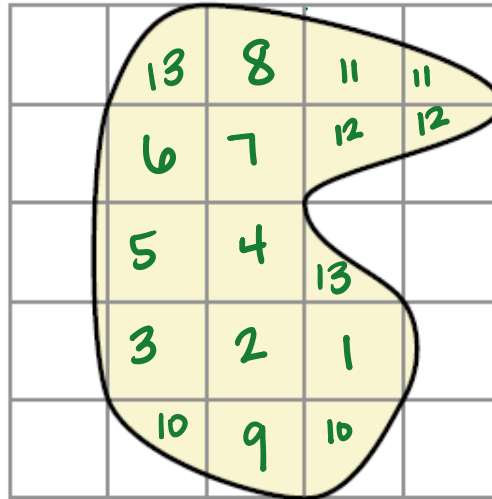
Find the area of a regular pentagon with perimeter of 30 inches. (10.2)

$A = \dfrac{a \cdot P}{2}$

① $\dfrac{360}{5} = 72$

② $\dfrac{72}{2} = 36$

③ apothem: $\tan 36 = \dfrac{3}{x}$
$x \approx 4.13$

$S = \dfrac{30}{5} = 6 in$

④ $A = \dfrac{4.13(30)}{2}$

$A \approx 61.94 \, in^2$

(triangle diagram: 6, 36, x, 3, 3)
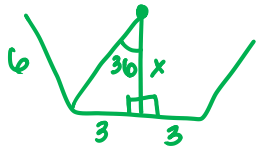
STATION 10

Miss Palumbo is painting a mural in her living room wall. The paint she uses covers 90 square feet per quart. How many quarts of paint should Miss Palumbo buy?
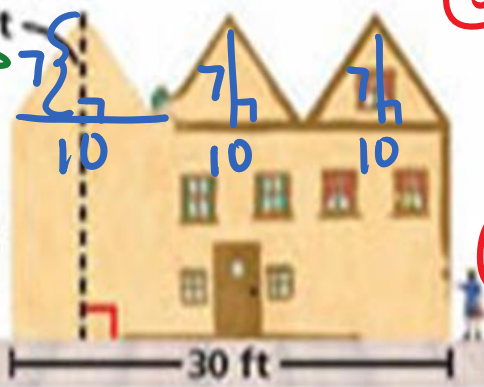
$A = rectangle + 3\triangle's$

① $A(rectangle) = 15(30)$
$A(rectangle) = 450$

$A\triangle = \dfrac{b \cdot h}{2} = \dfrac{7 \cdot 10}{2} = 35$

② Area of 3△'s = 3(35) = 105

③ $A = rectangle + 3\triangle's$
$A = 450 + 105$
$A = 555 \, ft^2$

④ Amt of paint $= \dfrac{A}{90}$

Amt of paint $= \dfrac{555}{90} \approx 6.17$

About 7 Quarts of paint

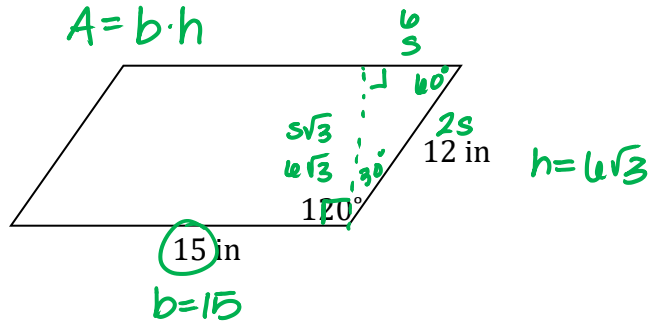(house diagram: 22 ft, 7, 10, 7, 10, 7, 10, 15 ft, 30 ft)

STATION 11

Find the area of an equilateral triangle with perimeter of 12 cm. *(10.2)*

$$A_{\triangle} = \frac{s^2\sqrt{3}}{4} = \frac{4^2\sqrt{3}}{4} = \frac{16\sqrt{3}}{4} = 4\sqrt{3}\,cm^2 \qquad s=4$$

$$A = 4\sqrt{3}\,cm^2$$

STATION 12

Find the area of the parallelogram. *(10.1)*

$$A = b \cdot h$$

$\frac{6}{3}$ 60°

$s\sqrt{3}$

$6\sqrt{3}$ 30° 2s 12 in $h = 6\sqrt{3}$

120°

15 in $b = 15$

$$A = b \cdot h$$

$$A = 15 \cdot 6\sqrt{3}$$

$$A = 90\sqrt{3}\,in^2$$