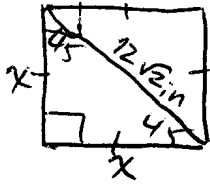


Work Chart 7 Quiz

①



$$45-45-90, \text{ hypot} = 12\sqrt{2}$$

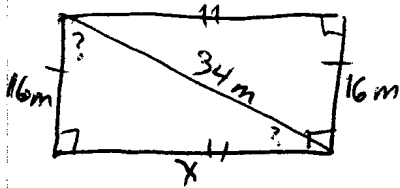
$$x\sqrt{2} = \text{hypot}$$

$$x\sqrt{2} = 12\sqrt{2}$$

$$x = 12 \quad \text{Area} = 12^2 = 144$$

$$\text{Area} = 144 \text{ in}^2$$

②



Pythag thm

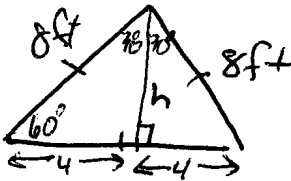
$$x^2 + 16^2 = 34^2$$

$$x = 30$$

$$A = 16 \cdot 30 = 480$$

$$\text{Area} = 480 \text{ m}^2$$

③



$$30-60-90, \text{ hypot} = 8$$

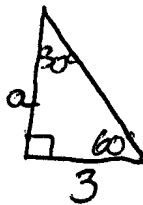
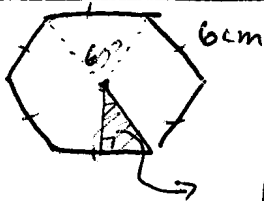
height is long side (opp 60°)

$$h = 4\sqrt{3}, \quad b = 8$$

$$\text{Area} = \frac{1}{2}bh = \frac{1}{2}(4\sqrt{3})(8) = 27.712$$

$$\text{Area} = 27.7 \text{ ft}^2$$

④



$$n = 6, \quad s = 6, \quad p = n \cdot s = 36$$

$$\text{center } \angle = \frac{360}{6} = 60^\circ$$

$$30-60-90, \text{ short side} = 3$$

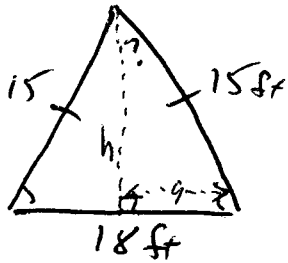
a is long side

$$a = 3\sqrt{3}$$

$$A = \frac{1}{2}ap = \frac{1}{2}(3\sqrt{3})(36) = 93.530$$

$$\text{Area} = 93.5 \text{ cm}^2$$

5



Pythag thm

$$h^2 + 9^2 = 15^2$$

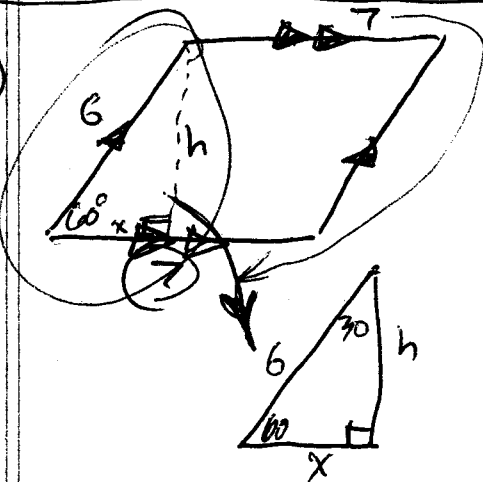
$$h = 12$$

$$b = 18$$

$$A = \frac{1}{2} b \cdot h = \frac{1}{2} (18)(12) = 108$$

$$\text{Area} = 108 \text{ ft}^2$$

6



Parallelogram

$$A = b \cdot h$$

$$b = 7$$

30-60-90, hypot = 6

h is long side (opp 60° L)

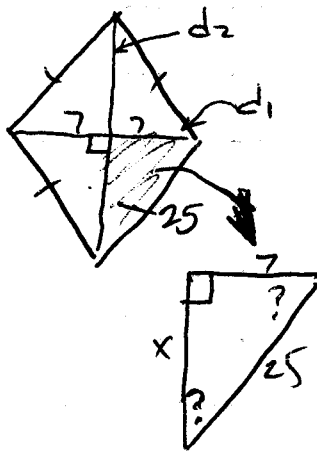
$$x \cdot (\text{short side}) = \frac{6}{2} = 3$$

$$h = 3\sqrt{3}$$

$$A = b \cdot h = 7 \cdot 3\sqrt{3} = 36.373$$

$$\text{Area} = 36.4 \text{ units}^2$$

7



Rhombus with diagonal info

$$d_1 = 14$$

Pythag thm

$$x^2 + 7^2 = 25^2$$

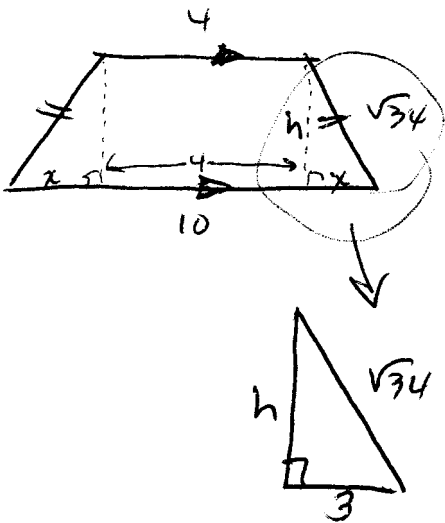
$$x = 24$$

$$d_2 = 2 \cdot 24 = 48$$

$$A = \frac{1}{2} d_1 d_2 = \frac{1}{2} (14)(48) = 336$$

$$\text{Area} = 336 \text{ units}^2$$

8



Isos Trap, $A = \frac{1}{2}h(b_1 + b_2)$

$$2x + 4 = 10$$

$$2x = 6$$

$$x = 3$$

$$b_1 = 4$$

$$b_2 = 10$$

Pythag thm

$$h^2 + 3^2 = (\sqrt{34})^2 = 34$$

$$h^2 = 25$$

$$h = 5$$

$$A = \frac{1}{2}h(b_1 + b_2) = \frac{1}{2}(5)(4 + 10) = 35$$

$$\text{Area} = 35 \text{ units}^2$$

9

$$18, 80, 82$$

$$18^2 + 80^2 = 6724$$

$$82^2 = 6724$$

Right

10

$$6, 12, 16$$

$$6^2 + 12^2 = 180$$

$$16^2 = 256$$

obtuse

11

$$\sqrt{11}, 4, 5$$

$$(\sqrt{11})^2 + 4^2 = 27$$

$$5^2 = 25$$

acute

12

no angle info \rightarrow pythag thm

$$12^2 + 4^2 = x^2$$

$$340 = x^2$$

$$x = \sqrt{340} = \sqrt{4 \cdot 85} = \sqrt{4} \cdot \sqrt{85} = 2\sqrt{85}$$

$$\textcircled{4} 9 \ 16 \ 25 \ 36 \ 49$$

(13) No angle info \rightarrow Pythag Thm

$$x^2 + 16^2 = (8\sqrt{5})^2$$

$$x^2 = 320 - 16^2 = 64$$

$$x = 8$$

$$\begin{aligned}(8\sqrt{5})^2 &= (8\sqrt{5})(8\sqrt{5}) \\ &= 8 \cdot 8 \cdot \sqrt{5} \cdot \sqrt{5} \\ &= 64 \cdot 5 \\ &= 320\end{aligned}$$

(14) 30° angle \rightarrow 30-60-90 hypot = y

short = x

long = 12

$$\sqrt{3}x = 12$$

$$x = \frac{12}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{12\sqrt{3}}{3} = 4\sqrt{3} \text{ (short)}$$

$$y = 2 \cdot x = 8\sqrt{3} \text{ (hypot)}$$

$$x = 4\sqrt{3}, y = 8\sqrt{3}$$

(15) base \angle 's $\cong \Rightarrow$ isos $\Delta \Rightarrow$ 45-45-90

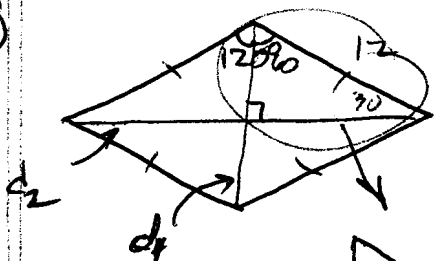
$$y = x\sqrt{2}$$

$$x = 4\sqrt{2}$$

$$y = (4\sqrt{2})(\sqrt{2}) = 4 \cdot \sqrt{2} \cdot \sqrt{2} = 4 \cdot 2 = 8$$

$$x = 4\sqrt{2}, y = 8$$

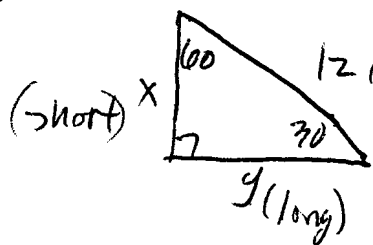
(16)



Rhombus, $A = \frac{1}{2} d_1 d_2$

diags bisect $\angle \Rightarrow$ 30-60-90

diags \perp



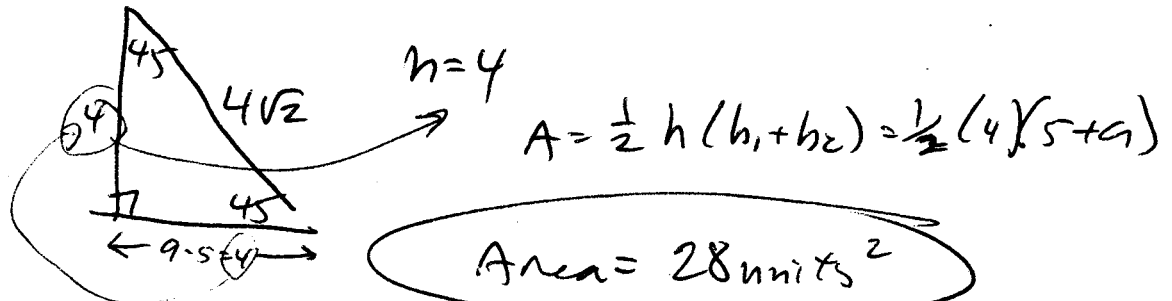
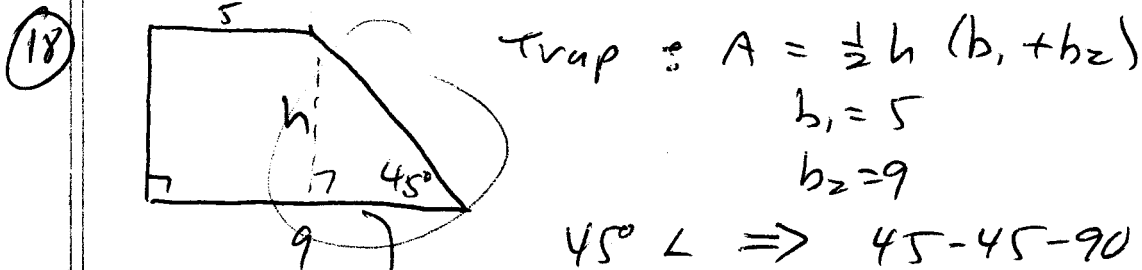
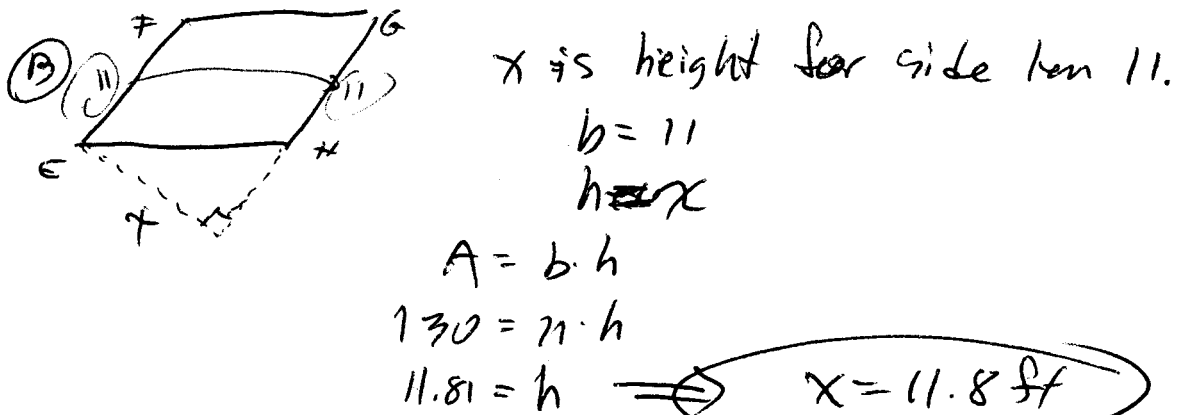
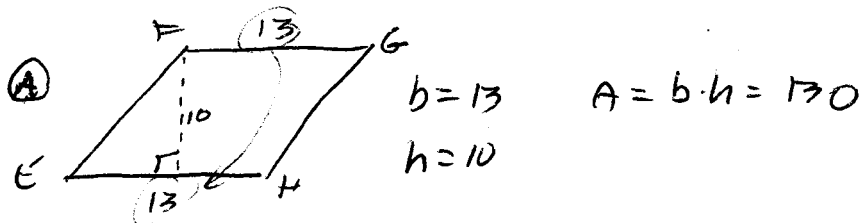
$$x = \frac{12}{2} = 6 \Rightarrow d_1 = 12$$

$$y = 6\sqrt{3} \Rightarrow d_2 = 12\sqrt{3}$$

$$A = \frac{1}{2} d_1 d_2 = \frac{1}{2} (12)(12\sqrt{3}) = 72\sqrt{3}$$

$$\text{Area} = 72\sqrt{3} \text{ units}^2$$

- (17) 2 step process. (A) use known base & height to calc Area
 (B) use area & other side info to get x



(19) Circumference = $2\pi r$
 $r = 8$
 $C = 16\pi$

(20) Area = πr^2
 $r = 8$
 $A = 64\pi$

$$(21) \text{Len } \widehat{PQ} = \frac{m\widehat{PQ}}{360} \cdot \text{Circumf.}$$

$$m\widehat{PQ} = 36^\circ$$

$$\text{circumf} = 2\pi r = 2 \cdot \pi \cdot 2 = 4\pi$$

$$\text{Len } \widehat{PQ} = \frac{36}{360} \cdot 4\pi = \frac{4}{10}\pi = \frac{2}{5}\pi$$

$$(22) \text{area sector } PNR = \frac{m\widehat{PQ}}{360} \cdot \text{area}$$

$$m\widehat{PQ} = 36^\circ$$

$$\text{area}_\circ = \pi r^2 = 4\pi$$

$$\text{area sector} = \frac{36}{360} \cdot 4\pi = \frac{4}{10}\pi = \frac{2}{5}\pi$$

$$(23) \text{Circumf} = 12$$

$$12 = 2\pi r$$

$$6 = \pi r$$

$$r = \frac{6}{\pi}$$

$$(24) \text{Area Segment} = \text{area Sector} - \text{area } \Delta$$

$$\text{area sector}$$

$$A = \frac{m\widehat{arc}}{360} \cdot \text{area}$$

$$= \frac{60}{360} \cdot \pi \cdot 5^2$$

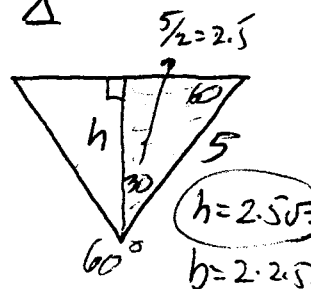
$$= \frac{25}{6}\pi$$

$$\text{area } \Delta$$

$$A = \frac{1}{2} b \cdot h$$

$$= \frac{1}{2} (5)(2.5\sqrt{3})$$

$$= 6.25\sqrt{3}$$



$$A_{\text{segment}} = \frac{25}{6}\pi - 6.25\sqrt{3} = 13.089 - 10.825 = 2.264$$

$$\text{Area} = 2.26 \text{ units}^2$$