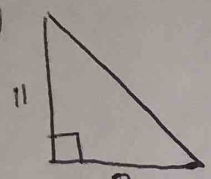
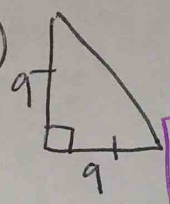
HM3 Area practice

① 

$A = \frac{1}{2}(6)(h)$

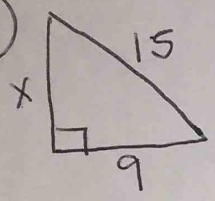
$A = \frac{1}{2}(3)(11)$

$A = 16.5 \text{ units}^2$

② 

$A = \frac{1}{2}(9)(9)$

$A = 40.5 \text{ in}^2$

③ 

$x^2 + 9^2 = 15^2$

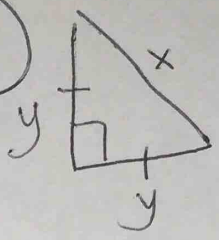
$x^2 + 81 = 225$

$x^2 = 144$

$x = 12$

$A = \frac{1}{2}(12)(9)$

$A = 54 \text{ units}^2$

④ 

$A = 72$

$72 = \frac{1}{2}y^2$

$144 = y^2$

$12 = y$

length of hypotenuse:

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

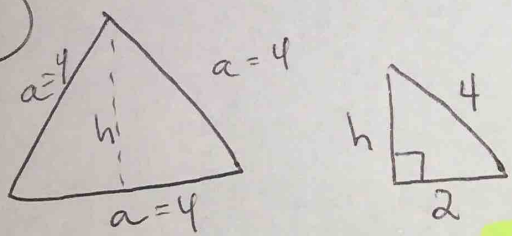
$288 = x^2$

$\sqrt{288} = x$

$2 \wedge 144$

$12 \; 12$

$x = 12\sqrt{2}$

⑤ 

$2^2 + h^2 = 4^2$

$4 + h^2 = 16$

$h^2 = 12$

$h = \sqrt{12}$

$6 \; 2$

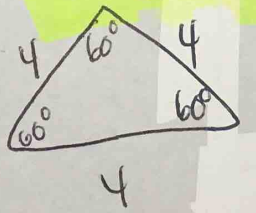
$3 \; 2$

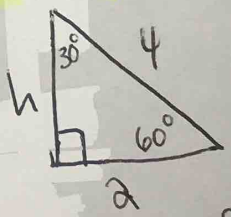
$h = 2\sqrt{3}$

$A = \frac{1}{2}(4)(2\sqrt{3})$

$A = 4\sqrt{3} \text{ units}^2$

★ can also use Special Triangle rules to Solve for the height

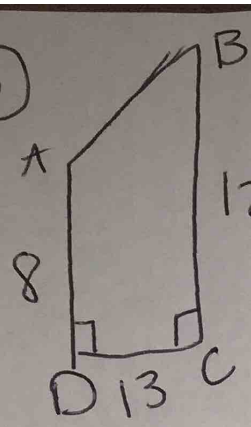




in a 30-60-90 △, the longer leg is always equal to Short Leg · $\sqrt{3}$

$h = 2\sqrt{3}$

(6)



Area of a Trapezoid → $A = \frac{1}{2}h(\text{base 1} + \text{base 2})$

the bases are the sides that are parallel

$A = \frac{1}{2}(13)(8+12)$

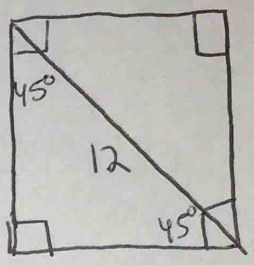
$A = 130 \text{ units}^2$

(7)

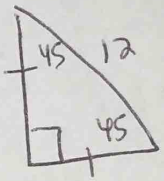
$A = \frac{1}{2}(9)(13+17)$

$A = 135 \text{cm}^2$

(8)



use Special Right △ Rules



in a 45-45-90, hyp = leg$\sqrt{2}$

so

$12 = x\sqrt{2}$

$\frac{\sqrt{2}}{\sqrt{2}} \cdot \frac{12}{\sqrt{2}} = x$ *rationalize

$\frac{12\sqrt{2}}{2} = x$ *reduce

$x = 6\sqrt{2}$

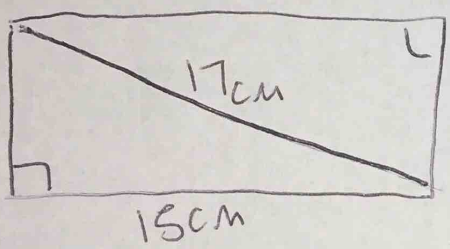
$A = l \cdot w$

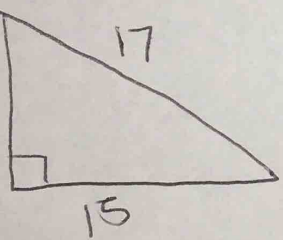
$A = 6\sqrt{2} \cdot 6\sqrt{2}$

$A = 36(2)$

$A = 72 \text{ units}^2$

(9)





$x^2 + 15^2 = 17^2$

$x^2 + 225 = 289$

$x^2 = 64$

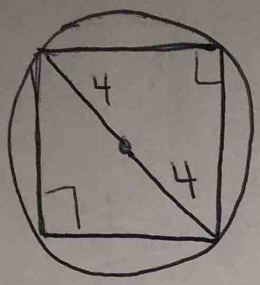
$x = 8$

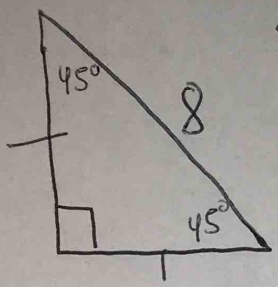
$A = l \cdot w$

$A = 15 \cdot 8$

$A = 120 \text{cm}^2$

10





Special Right △ Rule:

hyp = leg $\sqrt{2}$

$8 = x\sqrt{2}$

$\frac{\sqrt{2}}{\sqrt{2}}\ \frac{8}{\sqrt{2}} = x$

$\frac{8\sqrt{2}}{2} = x$

$4\sqrt{2} = x$

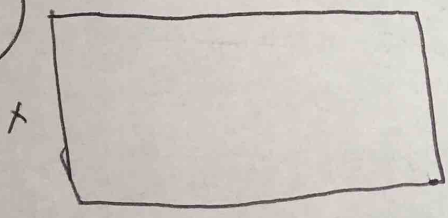
Area = l · w

$A = 4\sqrt{2} \cdot 4\sqrt{2}$

$A = 16(2)$

$A = 32 \text{ units}^2$

11



P = 100

$2(18) + 2x = 100$

$36 + 2x = 100$

$2x = 64$

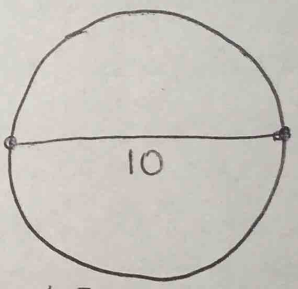
$x = 32$

$A = l \cdot w$

$A = 18 \cdot 32$

$A = 576 \text{ units}^2$

12



$A = \pi r^2$

$A = \pi(5)^2$

$A = 25\pi \text{ cm}^2$

leave it in terms of π

13

$A = 169\pi \text{ cm}^2$

$169\pi = \pi r^2$

$169 = r^2$

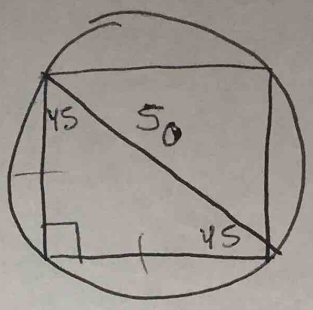
$13 = r$

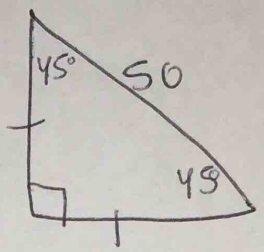
14 $C = 50\pi$ units^2

$C = 2\pi r$

$50\pi = 2\pi r$

$25 = r$





hyp = leg $\sqrt{2}$

$50 = x\sqrt{2}$

$\frac{\sqrt{2}}{\sqrt{2}} \cdot \frac{50}{\sqrt{2}} = x$

$\frac{50\sqrt{2}}{2} = x$

$25\sqrt{2} = x$

$A = l \cdot w$

$A = 25\sqrt{2} \cdot 25\sqrt{2}$

$A = 625(2)$

$A = 1250$ units^2