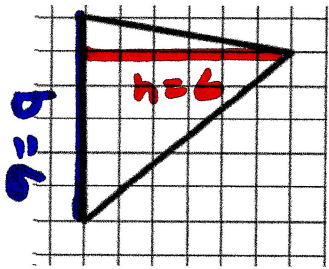


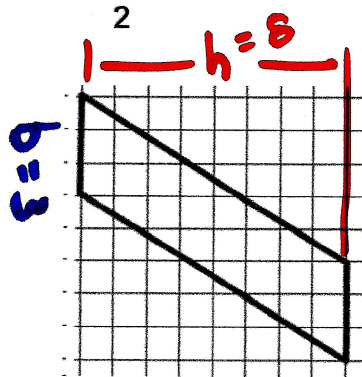
Find the area of each figure. Round to the nearest hundredth when needed unless noted otherwise.

1.



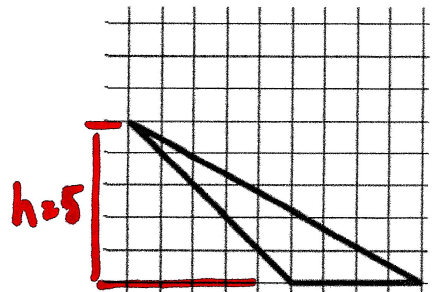
$$A = \frac{1}{2} (b)(h) = 18$$

2.



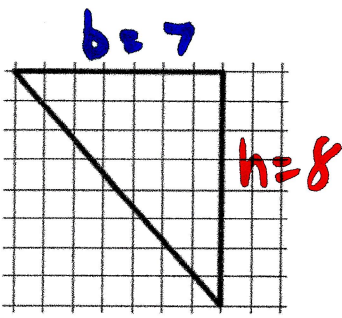
$$A = b \cdot h = (3)(8) = 24$$

3.



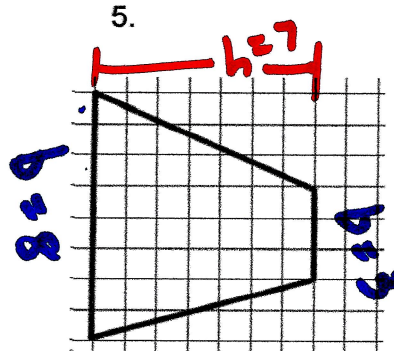
$$A = \frac{1}{2} (b)(h) = 10$$

4.



$$A = \frac{1}{2} (b)(h) = 28$$

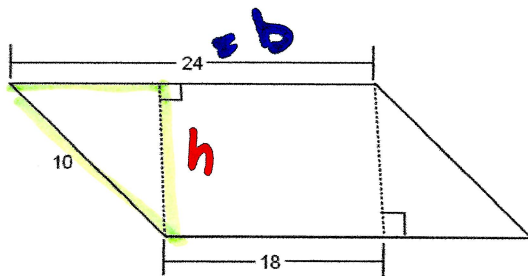
5.



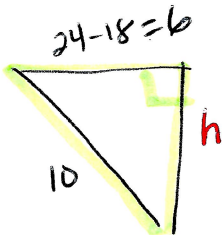
$$A = \frac{1}{2} (b+B)(h) = 38.5$$

A =

6. Parallelogram



$$A = b \cdot h = (24)(8) = 192$$

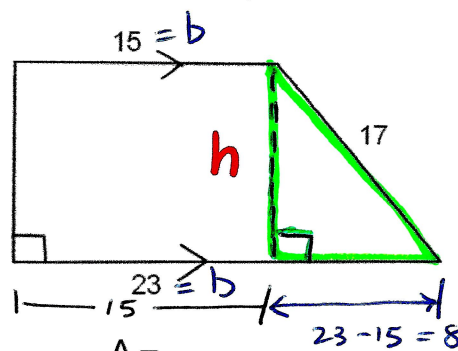


$$10^2 = 6^2 + h^2$$

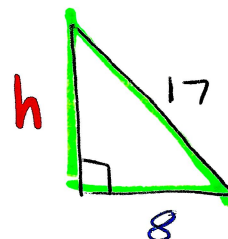
$$\sqrt{h^2} = \sqrt{10^2 - 6^2}$$

$$h = 8$$

7. Trapezoid



$$A = \frac{1}{2} (b+B)(h) = 285$$

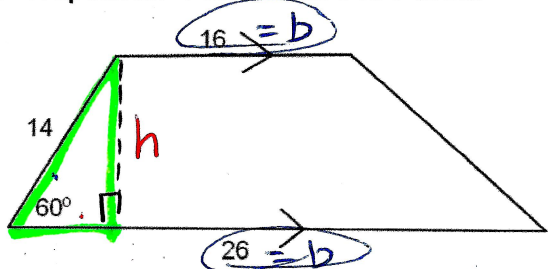


$$17^2 = h^2 + 8^2$$

$$\sqrt{h^2} = \sqrt{17^2 - 8^2}$$

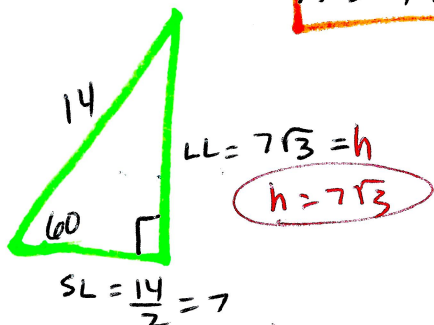
$$h = 15$$

8. Trapezoid. Find the EXACT area.

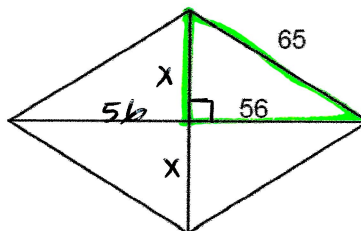


$$A = \frac{1}{2} (16 + 26) (7\sqrt{3})$$

$$A = 147\sqrt{3}$$



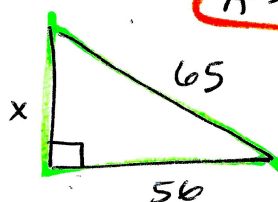
9. Rhombus.



$$A = \frac{1}{2} d \cdot d = \frac{1}{2} (112)(66)$$

$$A = 3696$$

$$\text{Horiz diag} = 2(56) = 112$$



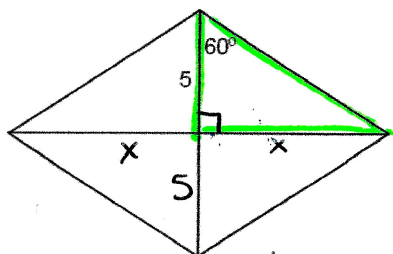
$$x^2 + 56^2 = 65^2$$

$$\sqrt{x^2} = \sqrt{65^2 - 56^2}$$

$$x = 33$$

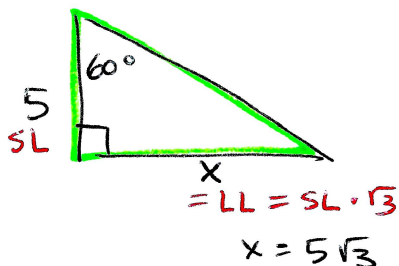
$$\text{Vert diag} = 2x = 2(33) = 66$$

10. Rhombus. Find the EXACT area.



$$A = \frac{1}{2} d \cdot d = \frac{1}{2} (10)(10\sqrt{3}) = 50\sqrt{3}$$

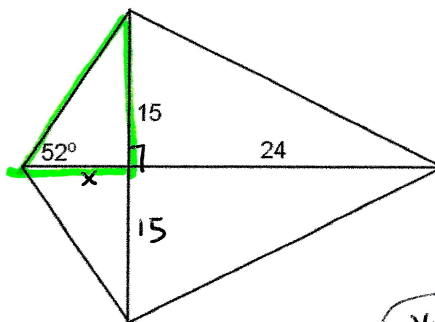
$$\text{Vert diag} = 2(5) = 10$$



$$x = 5\sqrt{3}$$

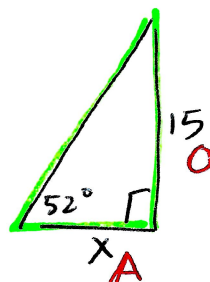
$$\text{Horiz diag} = 2x = 2(5\sqrt{3}) = 10\sqrt{3}$$

11. Kite. Round to a hundredth.



$$A = \frac{1}{2} d \cdot d = \frac{1}{2} (30)(35.72) = 535.80$$

$$\text{vert diag} = 2(15) = 30$$



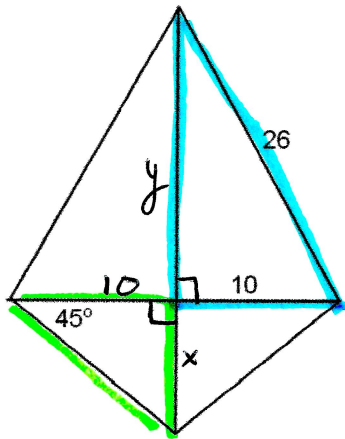
SOHCAHTOA

$$\tan 52^\circ = \frac{15}{x}$$

$$x = 11.72$$

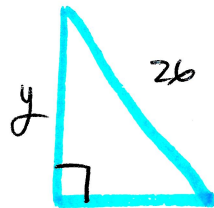
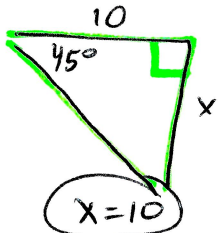
$$\text{Horiz diag} = x + 24 = 11.72 + 24 = 35.72$$

12. Kite.



$$A = \frac{1}{2} d \cdot d = \frac{1}{2} (20)(34) = \boxed{340}$$

$$\text{Horiz diag} = 2(10) = (20)$$



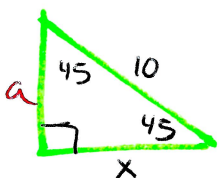
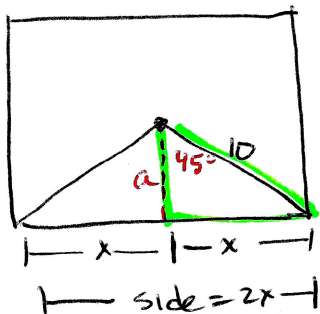
$$\text{Vertical diag} = x + y = 10 + 24 = \boxed{34}$$

$$26^2 = y^2 + 10^2$$

$$\sqrt{y^2} = \sqrt{26^2 - 10^2} \quad y = 24$$

For 14-15 find the EXACT area of each regular polygon. Circle your answer.

14. Square with radius of 10 m.



$$A = \frac{1}{2} a p$$

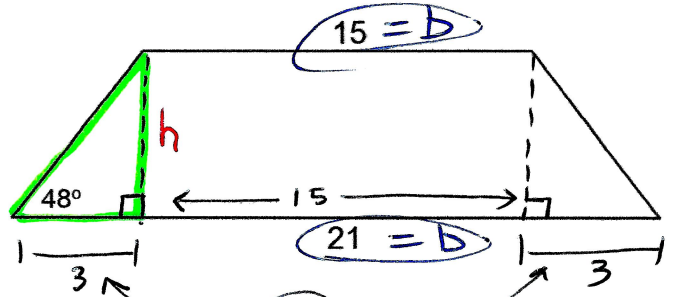
$$= \frac{1}{2} (5\sqrt{2})(40\sqrt{2})$$

$$= \boxed{200 \text{ m}^2}$$

$$a = x = \frac{10}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{10\sqrt{2}}{2} = 5\sqrt{2} \quad a = 5\sqrt{2}$$

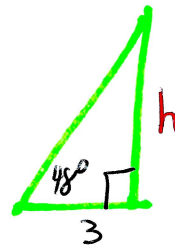
$$\text{side} = 2x = 10\sqrt{2} \quad \text{perimeter} = \text{side} \cdot 4 = 10\sqrt{2} \cdot 4 = 40\sqrt{2}$$

13. Isosceles Trapezoid.



$$\frac{21 - 15}{2} = 3$$

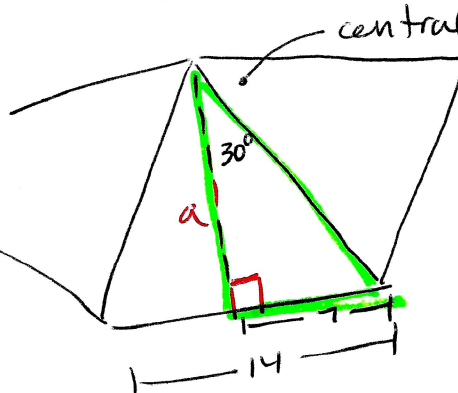
$$A = \frac{1}{2} (15 + 21)(3.33) = \boxed{59.94}$$



$$\tan 48^\circ = \frac{h}{3}$$

$$\boxed{h = 3.33}$$

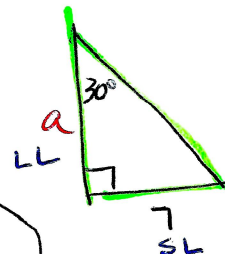
15. Regular Hexagon with sides of 14 in.



$$\text{perimeter} = \text{side} \cdot 6$$

$$= (14)(6)$$

$$\boxed{P = 84}$$



$$a = 7\sqrt{3}$$

$$\boxed{a = 7\sqrt{3}}$$

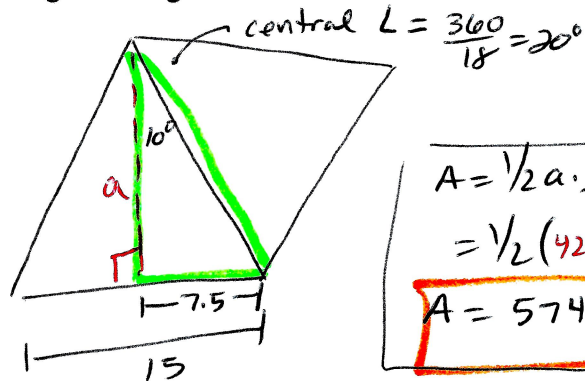
$$A = \frac{1}{2} a \cdot p$$

$$= \frac{1}{2} (7\sqrt{3})(84)$$

$$\boxed{A = 294\sqrt{3} \text{ in}^2}$$

For 16-17 find the area of each regular polygon to the nearest hundredth. Circle your answer.

16. Regular 18-gon with sides of 15 in.



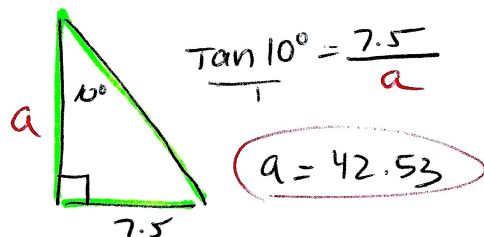
$$A = \frac{1}{2} a \cdot p$$

$$= \frac{1}{2} (42.53) (270)$$

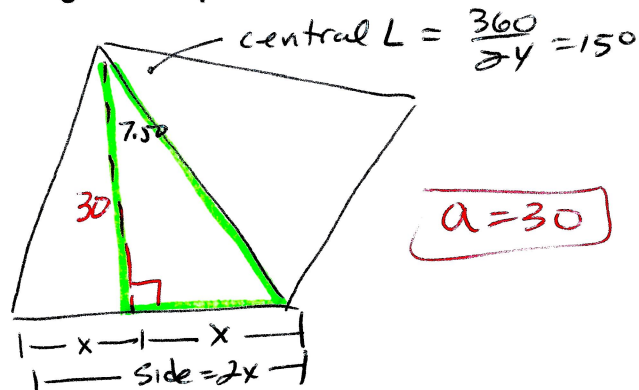
$$A = 5741.55$$

in^2

$$\text{perimeter} = 18(15) = 270$$



17. Regular 24-gon with apothem of 30 cm.



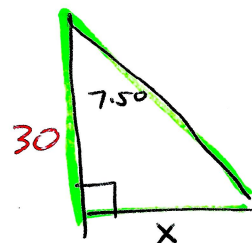
$$a = 30$$

$$A = \frac{1}{2} a \cdot p$$

$$= \frac{1}{2} (30) (189.6)$$

$$A = 2844$$

cm^2



$$\tan 7.5^\circ = \frac{x}{30}$$

$$x = 3.95$$

$$\text{side} = 2x$$

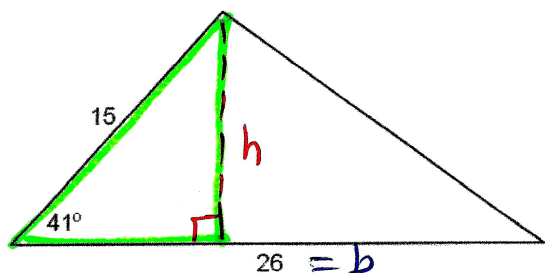
$$= 2(3.95)$$

$$= 7.9$$

$$\text{perimeter} = 24(7.9)$$

$$P = 189.6$$

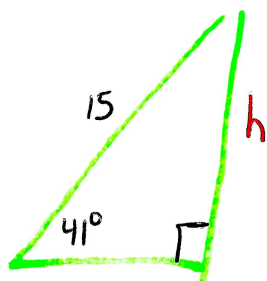
18. Find the area of this triangle to the nearest hundredth.



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

$$= \frac{1}{2} (26) (9.84)$$

$$A = 127.92$$



$$\sin 41^\circ = \frac{h}{15}$$

$$h = 9.84$$