

AREA REVIEW

UNIT 9 REVIEW

NAME: Answer key

Area of Polygons and Circles (You will not be given formulas)

DATE: _____

$A = bh$ $A = \frac{1}{2}bh$ $A = \frac{1}{2}(b_1 + b_2)h$ $A = \frac{1}{2}d_1d_2$ $A = \frac{1}{2}ap$ $A = \pi r^2$ $C = 2\pi r$

Find the area of each. Label your answer. Round to the nearest tenth.

1. Triangle

$A_{\Delta} = \frac{1}{2}bh$
 $= \frac{1}{2}(5.3)(8.6)$
 $A = 22.79 \text{ cm}^2$

2. Parallelogram

$A_p = bh$
 $= 4.1 \cdot 3$
 $A = 12.3 \text{ in}^2$

3. Kite

$b^2 + b^2 = 26^2$
 $b^2 = 576$
 $b = 24$
 $A_k = \frac{1}{2}d_1d_2$
 $= \frac{1}{2}(58)(48)$
 $A = 1392 \text{ cm}^2$

4. Trapezoid

SPT
 $A_T = \left(\frac{8+20}{2}\right)5$
 $= 14 \cdot 5$
 $A = 70 \text{ m}^2$

5. Kite Rhombus

$A = \frac{1}{2}d_1d_2$
 $= \frac{1}{2}(8)(16)$
 $A = 64 \text{ in}^2$

6. Regular Hexagon

Side = 8 ft

$A = \frac{1}{2}ap$
 $\frac{1}{2}(4)(3)(8 \cdot 6)$
 $A = 96\sqrt{3} \text{ ft}^2$
 $\approx 166.277 \text{ ft}^2$

Find the missing part. Label your answer. Round to the nearest tenth.

7. Triangle

$A = \frac{1}{2}bh$
 $36 = \frac{1}{2}(10.6)h$
 $h = 6.79 \text{ mi}$

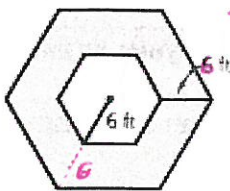
8. Trapezoid

$? = 5.3953$
 $A = \frac{(b_1+b_2)h}{2}$
 $37.4 = \frac{(?+12) \cdot 4.3}{2}$
 $8.6976 \dots = \frac{(?+12)}{2}$
 $17.395 \dots = ?+12$
 -12

9. Circle K with Area = 200 m²

$A = \pi r^2$
 $200 = \pi r^2$
 $\frac{200}{\pi} = r^2$
 $\sqrt{\frac{200}{\pi}} = r$
 $r = \sqrt{\frac{200}{\pi}}$
 ≈ 7.9788

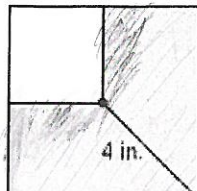
3. **SHADED REGION** The polygons are regular polygons. Find the area of the shaded region.



Shaded = Big - Small
 $= 216\sqrt{3} - 108\sqrt{3}$
 $= 108\sqrt{3} \text{ ft}^2$
 $\approx 187.0615 \text{ ft}^2$

Big = $\frac{1}{2}aP$
 $= \frac{1}{2}(6\sqrt{3})(72) = 216\sqrt{3}$

Small = $\frac{1}{2}(3\sqrt{3})(72) = 108\sqrt{3}$



Shaded = $\frac{3}{4}$ of big square
 $= \frac{3}{4}(128)$
 $= 96 \text{ in}^2$

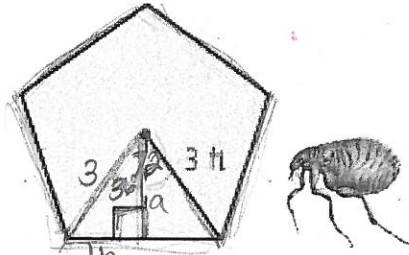
A Big square = $\frac{1}{2}d_1d_2$
 $= \frac{1}{2}(16)(16) = 128 \text{ in}^2$

4. **PERIMETER** Don't forget about perimeter. Perimeter is the length of all sides added together. Think about walking around the edge of the figure, how far would you walk. (It helps to pretend you are a flea so you can visualize walking around the figure, plus fleas can jump really high.)

Use the picture to the right to find...

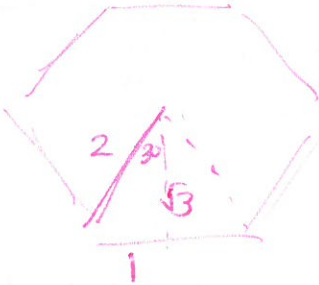
Perimeter = $5(3.5267) = 17.63356 \text{ ft}$

Area = $\frac{1}{2}aP$
 $= \frac{1}{2}(2.42705)(17.63)$
 $= 21.39877 \text{ ft}^2$



$\cos 36 = \frac{a}{3}$ $\cos 54 = \frac{\frac{1}{2}b}{3}$
 $a = 2.4270509$ $b = 3.5267$

5. Mr. Sullivan is really getting into baton. He wants to share his new routine with Mr. Brust's 4 year old daughter who is also really into baton. During the routine, Sully loses control of a baton and accidentally smashes Mr. Brust's beautiful stain glass hexagonal window with radius of 2 ft. It will cost 15 dollars per square foot to replace the window. How much does Mr. Sullivan have to pay to have it repaired?



$A = \frac{1}{2}aP$
 $\frac{1}{2}\sqrt{3}(12)$
 $= 6\sqrt{3}$
 $\approx 10.3923 \text{ ft}^2$

$\approx \$155.88$

