Entrance Slip

DATE: 5/16

1. The area of a right triangle is 54. If the ratio of the legs is 3:4, what is the length of the shortest leg?

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

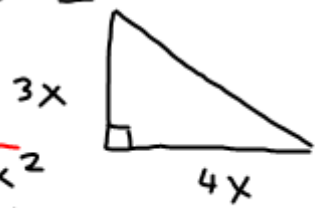
$54 = \frac{1}{2}(4x)(3x)$

$54 = 2x \cdot 3x \Rightarrow \frac{54}{9} = \frac{6x^2}{6}$

$\sqrt{9} = \sqrt{x^2}$

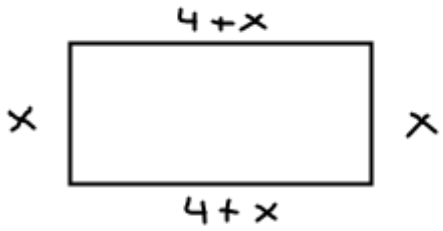
$3 = x$

short Leg $= 3(3) = \boxed{9}$



2. The length of a rectangle is 4 more than the width. If the perimeter is 56, find the area of the rectangle.

+ x

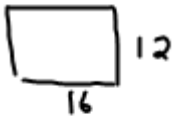


$P = 56$

$56 = 4x + 8$

$48 = 4x$

$12 = x$



$A = b \cdot h$

$= 16 \cdot 12 = 192\ u^2$

3. If the length of each side of a square is increased by 5 the area of the new square is 289. Find the length of the diagonal of the original square.

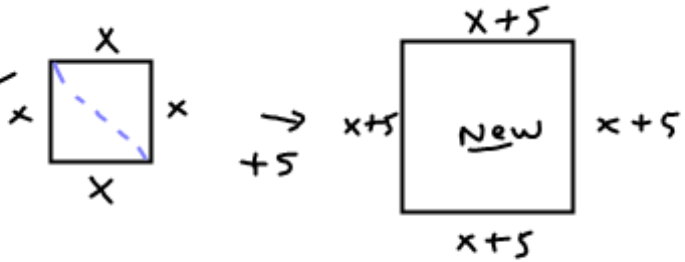
3. If the length of each side of a square is increased by 5 the area of the new square is 289. Find the length of the diagonal of the original square.

ORIGINAL

45-45-90

$45 \to x$, $45 \to x$, $90 \to x\sqrt{2}$

$\boxed{12\sqrt{2}}$



$A = s^2$

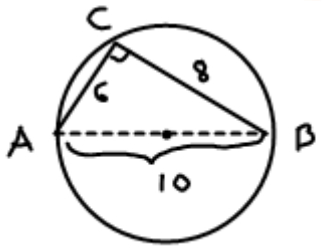
$\sqrt{289} = \sqrt{(x+5)^2}$

$\pm 17 = x+5$

$17 = x+5$ or $-17 = x+5$

$12 = x$ $\quad$ $\cancel{-22 = x}$

4. Triangle ABC is inscribed in a semicircle. AB is the diameter of the circle. If AC = 6 and the area of the triangle is 24, find the area of the circle.



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

$24 = \frac{1}{2}(6)h$

$24 = 3h$

$8 = h$

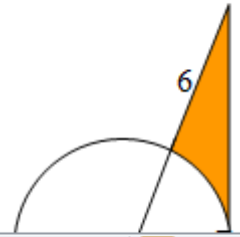
$6^2 + 8^2 = c^2$

$100 = c^2$

$10 = c$

$A = \pi r^2 = \pi(5)^2 = \boxed{25\pi\ u^2}$

5. The circumference of the circle is 12π. Find the area of the shaded region.



4. Triangle ABC is inscribed in a semicircle. AB is the diameter of the circle. If AC = 6 and the area of the triangle is 24, find the area of the circle.

5. The circumference of the circle is 12π. Find the area of the shaded region.

$C = 2\pi r$

$\frac{12\pi}{2\pi} = \frac{2\pi r}{2\pi}$

$6 = r$

$a^2 + b^2 = c^2$

$a^2 + 6^2 = 12^2$

$a^2 + 36 = 144$

$\sqrt{a^2} = \sqrt{108}$

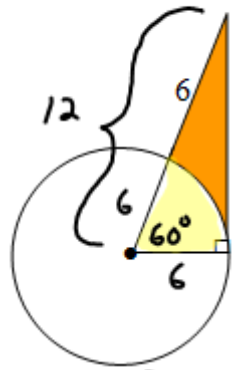
$\sqrt{36}\sqrt{3}$

$6\sqrt{3}$

30 – 60 – 90

$x \quad x\sqrt{3} \quad 2x$

$6 \quad 6\sqrt{3} \quad 12$



$6\sqrt{3} = h$

$A_{SHADED} = A_{\Delta} - A_{sector} = \frac{1}{2}(6)(6\sqrt{3}) - \frac{60}{360}\cdot\pi(6)^2 = 18\sqrt{3} - 6\pi \ u^2$