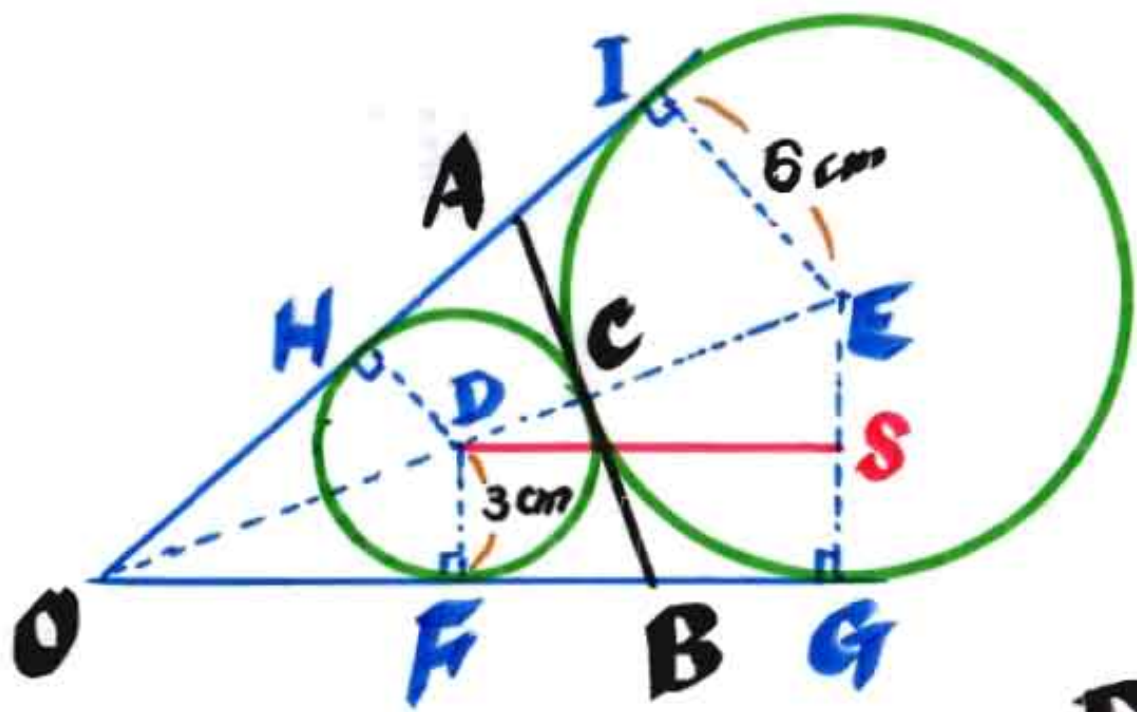


375

73%

円外の1点からの接線:



$BF = BC$
 $BG = BC = AC$
 $\therefore AB = FG$
 $= DS$

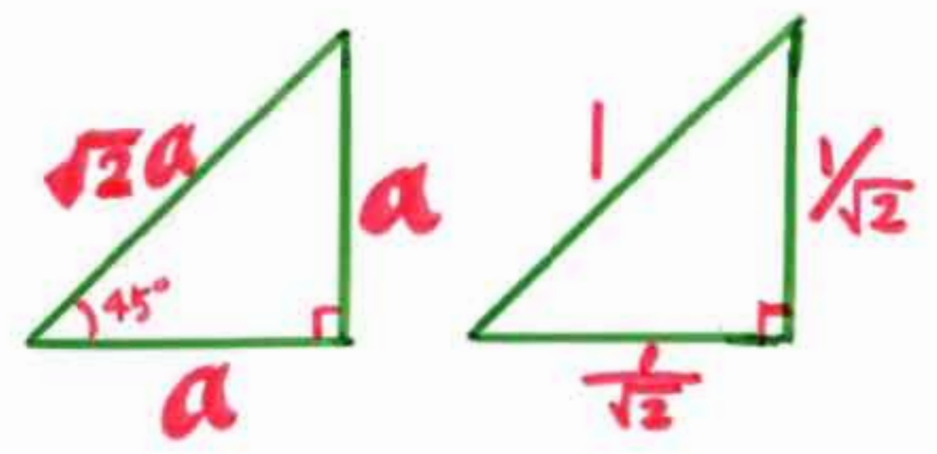
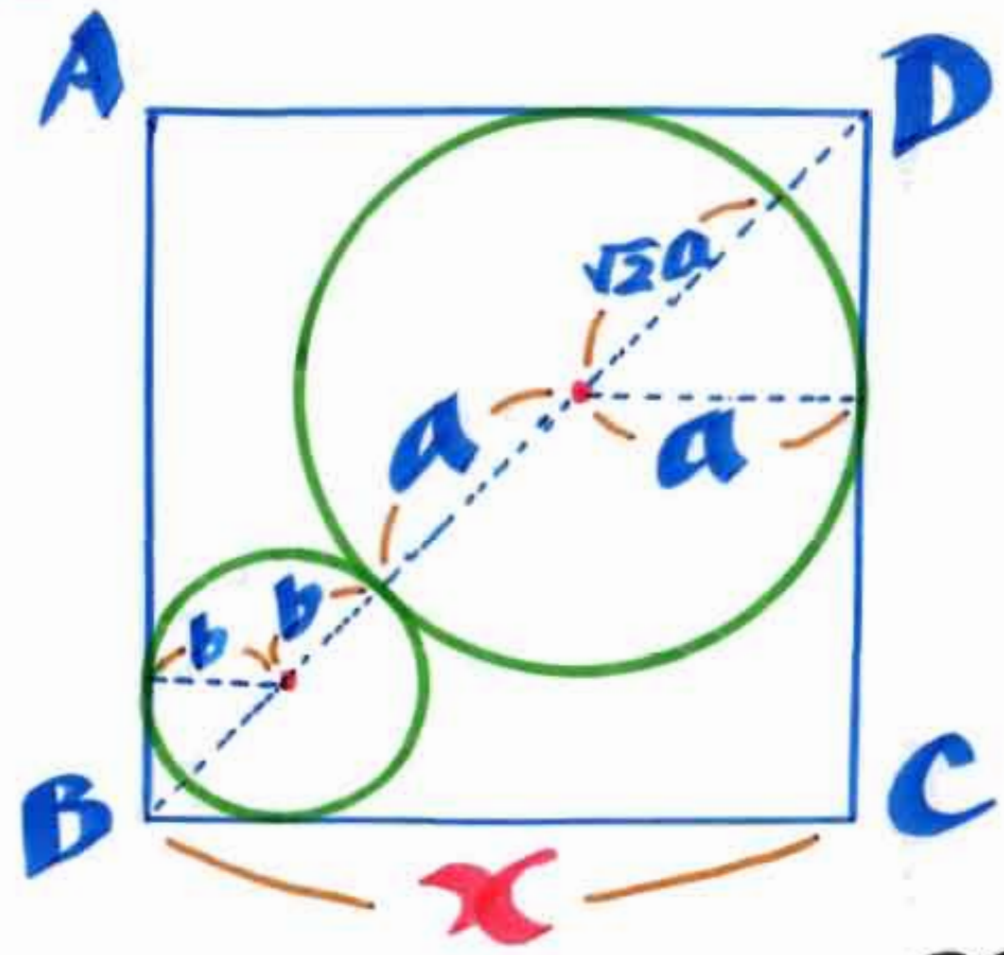
$$DE^2 = ES^2 + DS^2$$

$$DS = \sqrt{9^2 - 3^2}$$

$$= \sqrt{36 \times 2}$$

$$= \underline{\underline{6\sqrt{2}}}$$

57 **6**



$$\overline{BD} = \sqrt{2}a + a + b + \sqrt{2}b$$

$$= (a+b)(1 + \sqrt{2})$$

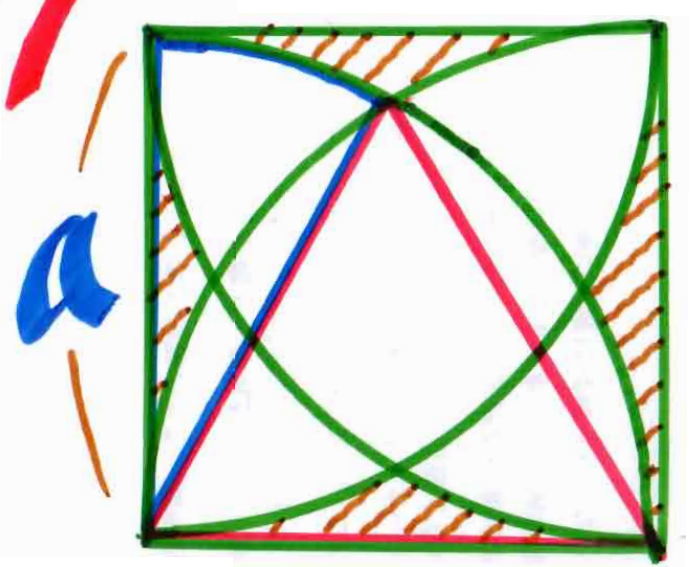
C

$$\frac{x}{\overline{BD}} = \frac{1}{\sqrt{2}} \quad x = \frac{\overline{BD}}{\sqrt{2}}$$

$$x = (a+b) \frac{1 + \sqrt{2}}{\sqrt{2}} = (a+b) \frac{(2 + \sqrt{2})}{2}$$

$a+b=5 \Rightarrow x = 2.5(2 + \sqrt{2})$; $a+b=10 \Rightarrow x = 5(2 + \sqrt{2})$

S7 75%

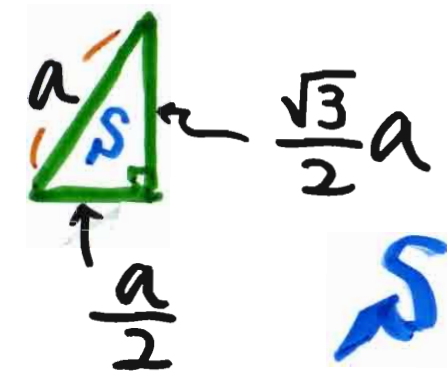


$$\text{shaded area} = \square - \triangle - 4 \cdot \text{circle segment} - \text{triangle}$$

$$a^2 - \frac{\sqrt{3}}{4}a^2 - \frac{2 \cdot \pi}{12}a^2$$

$$= \left(1 - \frac{\sqrt{3}}{4} - \frac{\pi}{6}\right)a^2$$

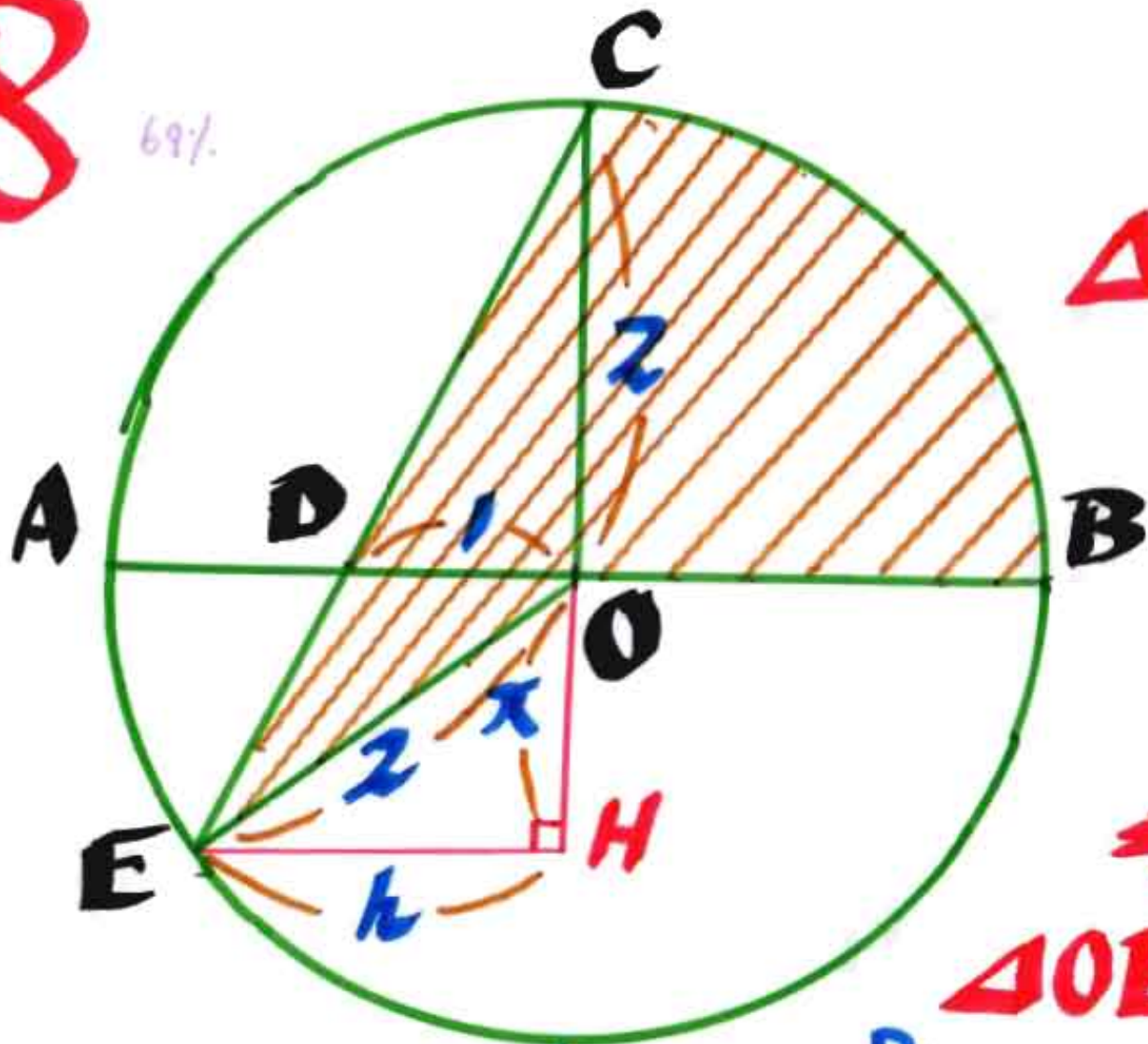
$$\times 4 \Rightarrow \underline{\underline{\left(4 - \sqrt{3} - \frac{2\pi}{3}\right)a^2}}$$



$$S = \frac{a}{2} \times \frac{\sqrt{3}}{2}a \div 2 = \frac{\sqrt{3}}{8}a^2$$

578

69%



$\triangle CDO$

$\sim \triangle CEH$

$$\frac{1}{h} = \frac{2}{2+x}$$

$$\Rightarrow x = 2h - 2$$

$\triangle OEH$ $2^2 = x^2 + h^2$

$$\Rightarrow h = \frac{8}{5}$$

$$S = 2^2 \pi \times \frac{1}{4} + 2 \times \frac{8}{5} \div 2$$

$$= \pi + \frac{8}{5}$$