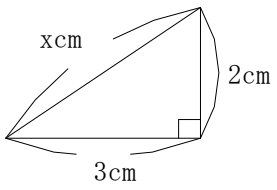
三平方の定理-1 解答　　目次3へ　問題へ

１．(1)

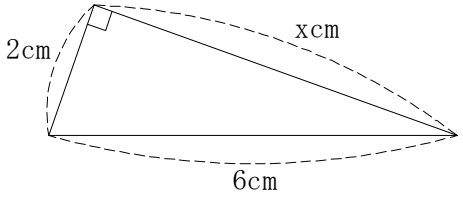


$x^2 = 3^2 + 2^2 = 13$

$x > 0$ より

$x = \sqrt{13}\,cm$

(2)

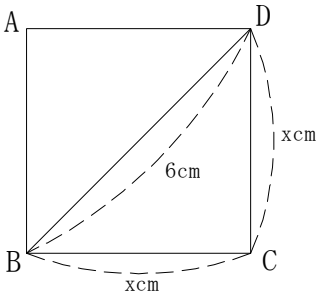


$x^2 = 6^2 - 2^2 = 36 - 4 = 32$

$x > 0$ より

$x = \sqrt{32} = 4\sqrt{2}\,cm$

(3)



$x^2 + x^2 = 6^2$

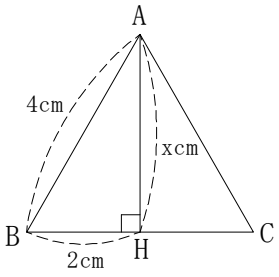
$2x^2 = 36$

$x^2 = 18$

$x > 0$ より

$x = \sqrt{18} = 3\sqrt{2}\,cm$

(4)

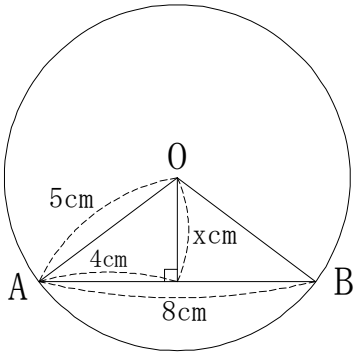


$x^2 = 4^2 - 2^2 = 16 - 4 = 12$

$x > 0$ より

$x = \sqrt{12} = 2\sqrt{3}\,cm$

(5)

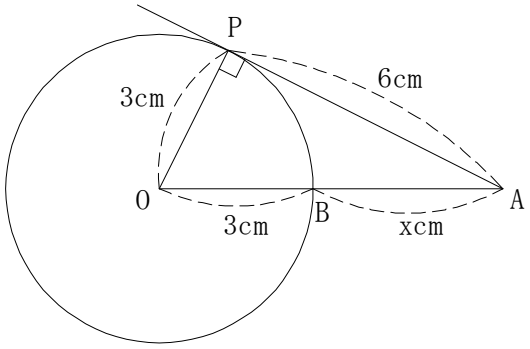


$x^2 = 5^2 - 4^2 = 25 - 16 = 9$

$x > 0$ より

$x = \sqrt{9} = 3cm$

(6)



$AO^2 = 3^2 \times 6^2$

$AO^2 = 45$

$AO > 0$ より

$AO = \sqrt{45} = 3\sqrt{5}$

よって

$x = AO - 3 = 3\sqrt{5} - 3 \ \ cm$

2．　ア　1cm，2cm，3cm　　$1^2 + 2^2 = 5 \neq 3^2$　　（×）

イ　3cm，4cm，5cm　　$3^2 + 4^2 = 25 = 5^2$　　（○）

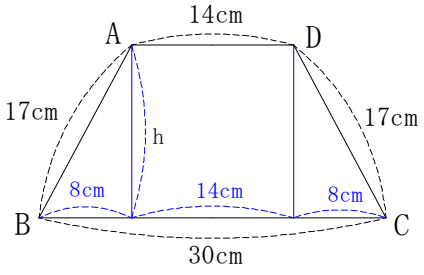
ウ　1.3cm，1.2cm，0.5cm　　$1.2^2 + 0.5^2 = 1.69 = 1.3^2$　　（○）

エ　$\sqrt{3}\,cm$，2cm，$\sqrt{5}\,cm$　　$\left(\sqrt{3}\right)^2 + 2^2 = 7 \neq \left(\sqrt{5}\right)^2$　　（×）

3．　(1)　A(1, 1)，B(3, 4)　　$AB = \sqrt{(3-1)^2 + (4-1)^2} = \sqrt{2^2 + 3^2} = \sqrt{13}$

(2)　C(−2, −1)，D(1, 3)　　$CD = \sqrt{[1-(-2)]^2 + [3-(-1)]^2} = \sqrt{3^2 + 4^2} = \sqrt{25} = 5$

4．　(1)



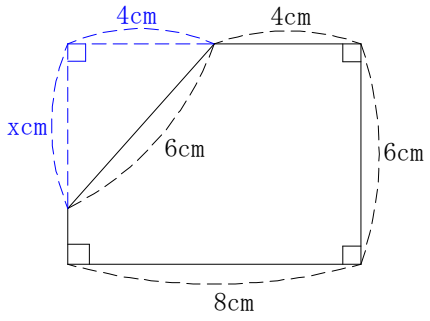
$h^2 + 8^2 = 17^2$

$h^2 = 17^2 - 8^2 = 289 - 64 = 225$

$h > 0$　より　$h = 15cm$

面積＝$\dfrac{(14+30)\times 15}{2} = 330cm^2$

(2)



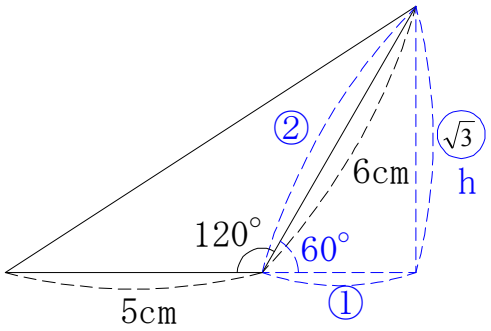
$x^2 + 4^2 = 6^2$

$x^2 = 6^2 - 4^2 = 36 - 16 = 20$

$x > 0$　より　$x = \sqrt{20} = 2\sqrt{5}$

面積＝$8\times 6 - \dfrac{4\times 2\sqrt{5}}{2} = 48 - 4\sqrt{5} \ \ cm^2$

(3)



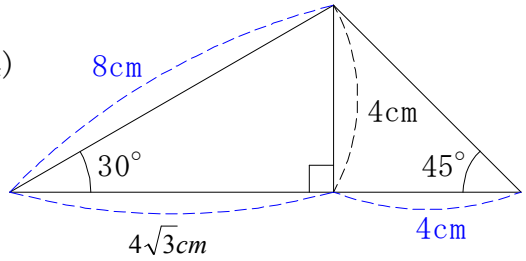
$6 : h = 2 : \sqrt{3}$

$2h = 6\sqrt{3}$

$h = 3\sqrt{3}$

面積$= \dfrac{5 \times 3\sqrt{3}}{2} = \dfrac{15\sqrt{3}}{2}$ cm^2

(4)



特殊な直角三角形の比を使って

$4\sqrt{3}\,cm$　　$4cm$

が求まる

面積$= \dfrac{\left(4 + 4\sqrt{3}\right) \times 4}{2} = 8 + 8\sqrt{3}$ cm^2

以上