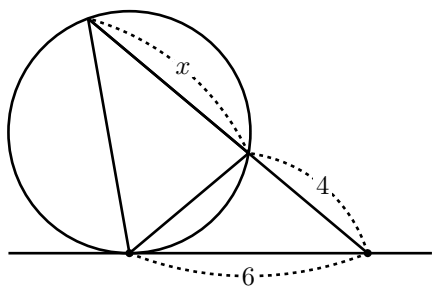


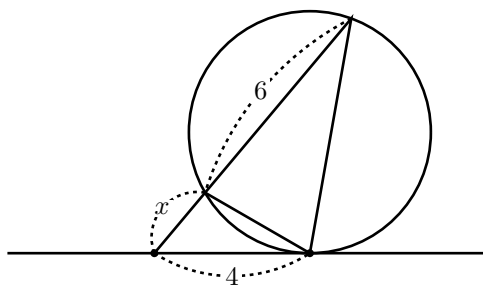
反射テスト 線分の長さ 方べきの定理 接弦定理 01

1. x の長さを求めよ。(S級 40 秒, A級 1 分 10 秒, B級 2 分, C級 4 分)

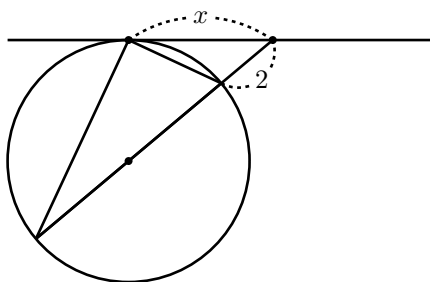
(1)



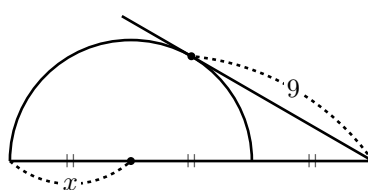
(2)



(3) 円の半径は 4.

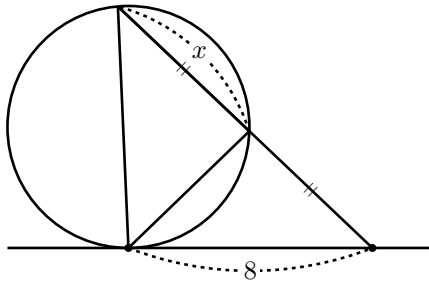


(4)

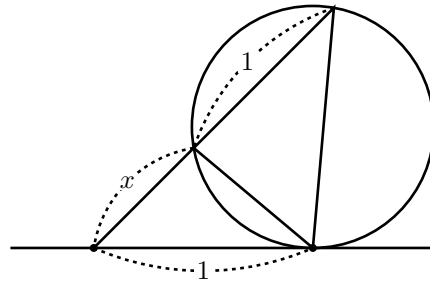


2. 次の間に答えよ。(S級2分, A級3分, B級4分30秒, C級6分)

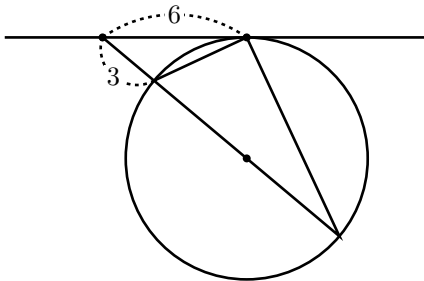
(1) x の長さを求めよ.



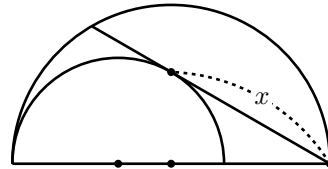
(2) x の長さを求めよ.



(3) 円の半径を求めよ.

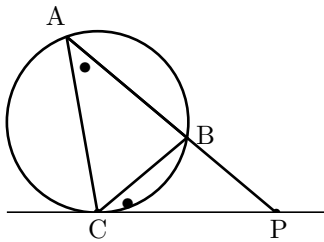


(4) 大半円の半径 a , 小半円の半径 b
 x を a, b で表せ.



反射テスト 線分の長さ 方べきの定理 接弦定理 01 解答解説

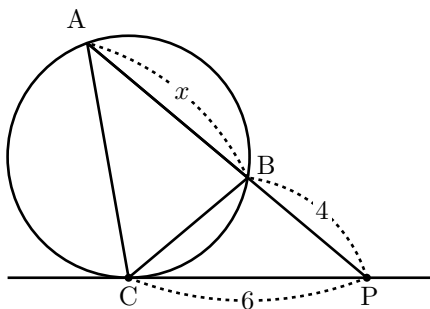
1. x の長さを求めよ。(S級 40 秒, A級 1 分 10 秒, B級 2 分, C級 4 分)



★方べきの定理③ $PA \times PB = PC^2$
 $\triangle PAC \sim \triangle PCB \quad \because$ 二角相等 $\begin{cases} \angle APC = \angle CPB & (\text{共通}) \\ \angle PAC = \angle PCB & (\text{接弦定理}) \end{cases}$
 $\therefore PA : PC = PC : PB \Leftrightarrow PA \times PB = PC^2$

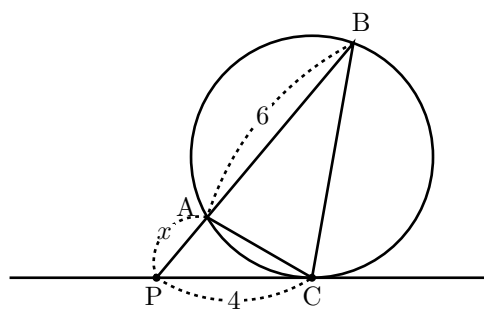
☆覚え方 円の内接四角形で, $C = D$ の場合と考える.

(1)



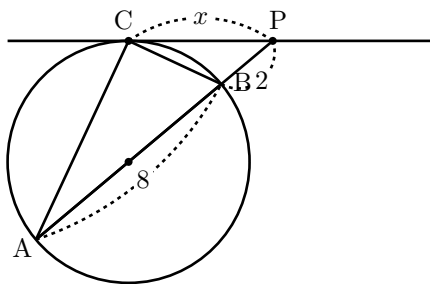
★方べきの定理③ $PA \times PB = PC^2$
 $(x+4) \times 4 = 6^2$
 $\Leftrightarrow 4(x+4) = 36$
 $\Leftrightarrow x+4 = 9$
 $\Leftrightarrow x = 5 \quad \dots$ 答え

(2)



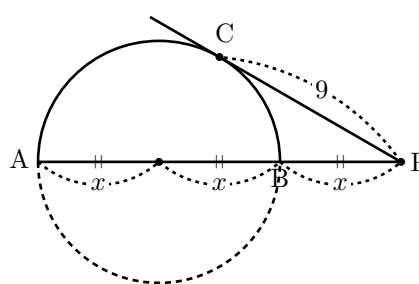
★方べきの定理③ $PA \times PB = PC^2$
 $x \times (x+6) = 4^2$
 $\Leftrightarrow x^2 + 6x - 16 = 0$
 $\Leftrightarrow (x+8)(x-2) = 0$
 $\Leftrightarrow x = -8, 2$
 $x > 0$ より, $x = 2 \quad \dots$ 答え

(3) 円の半径は 4.



$AB = 4 \times 2 = 8$
 ★方べきの定理③ $PA \times PB = PC^2$
 $2 \times (2+8) = x^2$
 $\Leftrightarrow x^2 = 20$
 $\Leftrightarrow x = \pm 2\sqrt{5}$
 $x > 0$ より, $x = 2\sqrt{5} \quad \dots$ 答え

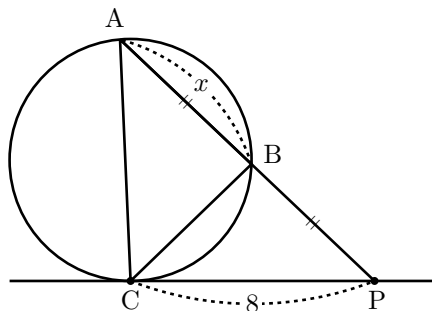
(4)



★方べきの定理③ $PA \times PB = PC^2$
 $3x \times x = 9^2$
 $\Leftrightarrow 3x^2 = 81$
 $\Leftrightarrow x^2 = 27$
 $\Leftrightarrow x = \pm 3\sqrt{3}$
 $x > 0$ より, $x = 3\sqrt{3} \quad \dots$ 答え

2. 次の間に答えよ。(S級2分, A級3分, B級4分30秒, C級6分)

(1) x の長さを求めよ.



★方べきの定理③ $PA \times PB = PC^2$

$$2x \times x = 8^2$$

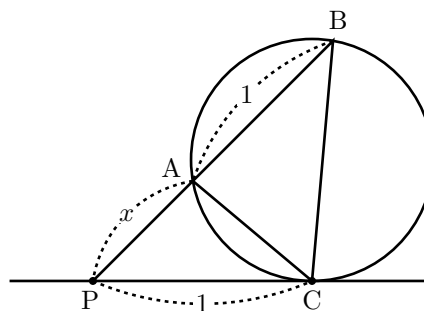
$$\Leftrightarrow 2x^2 = 64$$

$$\Leftrightarrow x^2 = 32$$

$$\Leftrightarrow x = \pm 4\sqrt{2}$$

$$x > 0 \text{ より, } x = 4\sqrt{2} \quad \dots\text{答え}$$

(2) x の長さを求めよ.



★方べきの定理③ $PA \times PB = PC^2$

$$x \times (x+1) = 1^2$$

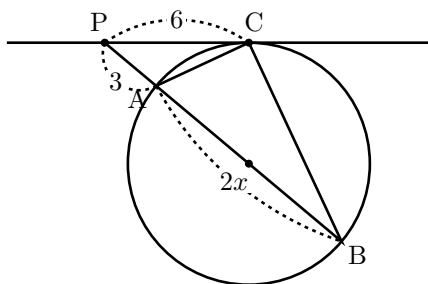
$$\Leftrightarrow x^2 + 1x - 1 = 0$$

$$\Leftrightarrow x = \frac{-1 \pm \sqrt{(-1)^2 - 4 \times 1 \times (-1)}}{2 \times 1}$$

$$\Leftrightarrow x = \frac{-1 \pm \sqrt{5}}{2}$$

$$x > 0 \text{ より, } x = \frac{-1 + \sqrt{5}}{2} \quad \dots\text{答え}$$

(3) 円の半径を求めよ.



円の半径を x とすると,

★方べきの定理③ $PA \times PB = PC^2$

$$3 \times (3 + 2x) = 6^2$$

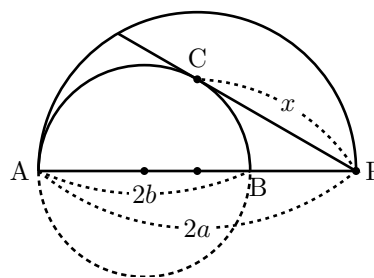
$$\Leftrightarrow 3(2x + 3) = 36$$

$$\Leftrightarrow 2x + 3 = 12$$

$$\Leftrightarrow 2x = 9$$

$$\Leftrightarrow x = \frac{9}{2} \quad \dots\text{答え}$$

(4) 大半円の半径 a , 小半円の半径 b x を a, b で表せ.



大半円の半径 $a \Rightarrow PA = 2a$

小半円の半径 $b \Rightarrow AB = 2b$

$$\Rightarrow PB = 2a - 2b$$

★方べきの定理③ $PA \times PB = PC^2$

$$2a(2a - 2b) = x^2$$

$$\Leftrightarrow 4a(a - b) = x^2$$

$$\Leftrightarrow x = \pm 2\sqrt{a(a - b)}$$

$$x > 0 \text{ より, } x = 2\sqrt{a(a - b)} \quad \dots\text{答え}$$