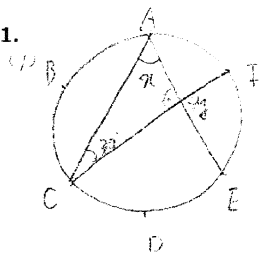


中3数学 チェックテスト 10/14 解答

1.



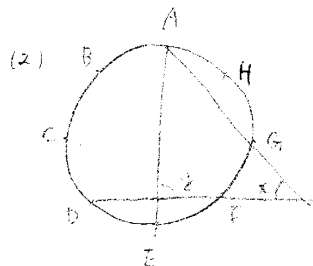
(1) 6等分 → 中心角 120度 $360:6=60$
円周角 120度 $60 \times 2 = 120$

$$\angle x = 30 \times 2 = 60$$

$$\angle ACF = 30 + 41$$

$$\angle y = 180 - (60 + 30)$$

$$= 90$$



(2) 8等分 → 中心角 45度 $360:8=45$
円周角 45度 $45:2=22.5$

AEは直径

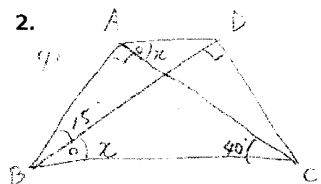
D, FはAEに対して線対称な点

$$AE \perp DF \quad \angle y = 90$$

$$\angle EAG = 22.5 \times 2 = 45$$

$$\angle x = 180 - (45 + 90) = 45$$

2.



$$\angle BAC = \angle BDC = 40$$

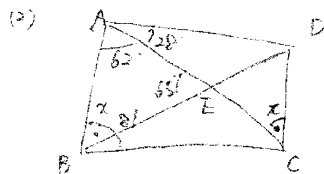
4点A, B, C, Dは同一円周上の点

$$\angle CAD = \angle CBD$$

$$\triangle ABC \sim \triangle ABD \quad 180 - 90 - 40 = 50$$

$$\angle CBD = 50 - 15$$

$$\angle x = 35$$



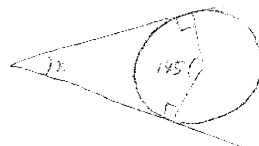
$$\angle ABE = 180 - (60 + 65) = 55$$

$$\angle CBD = 81 - 55 = 26$$

$$\angle CAD = \angle CBD \quad 4点A, B, C, Dは同一円周上の点$$

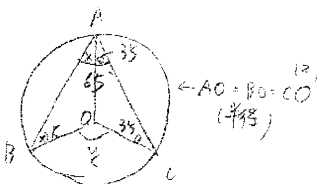
$$\angle ACD = \angle ABD = 53$$

3.



$$\angle x = 360 - (145 + 90 + 90)$$

$$= 35$$



$$AO \perp BO \quad \angle OAC = \angle OCA = 25$$

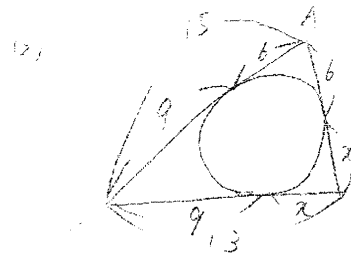
$$\angle BAO = 65 - 25 = 40$$

$$\angle ABO = \angle BAO = 40$$

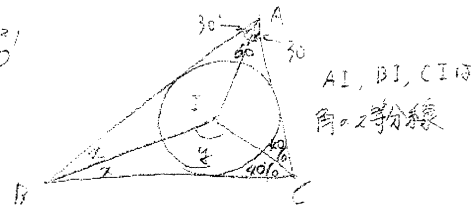
$$\angle x = 30$$

$$\angle y = \angle BAC \times 2 \quad \angle C = 40$$

$$= 65 \times 2 = 130$$



$$\angle x = 13 - 9 = 4$$



$$2x + 60 + 40 \times 2 = 180$$

$$2x = 40$$

$$x = 20$$

$$\angle y = 180 - (20 + 40)$$

$$= 120$$

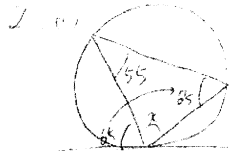
チェックテスト ② 10/14

1. 内接円の半径を r mm とする

$$\frac{1}{2} \times (15 + 8 + 17) \times 15 \times 8 \times \frac{1}{2}$$

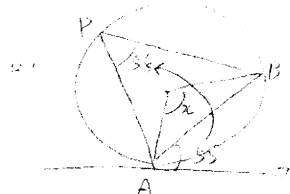
$$40r = 120$$

$$r = 3 \text{ mm} \quad \textcircled{10}$$



$$\begin{aligned} x + 180 &= (55 + 55) \\ &= 180 - 120 \\ &= 60^\circ \end{aligned}$$

⑤



$$\angle B \text{ の円周角} = \angle TAB = 55^\circ$$

$$x = 55 \times 2 = 110^\circ$$

⑤

<Challenge!!>

$$(1) y = ax^2, A(4, 4) \text{ を通る}$$

$$4 = 16a$$

$$a = \frac{1}{4} \quad \textcircled{1}$$

$$(2) AO = OC = r$$

$$r = OC = 2 + 3$$

$$OC = r \quad C(-6, -6)$$

$B(-4, 4)$ と $C(-6, -6)$ を通る直線

$$\begin{cases} 4 = -4a + b & 4 = -4 \times 3 + b \\ -6 = -6a + b & b = 24 \end{cases}$$

$$10 = 2a$$

$$a = 5$$

$$y = 5x + 4 \quad \textcircled{3}$$

(3) CE の中点 M とする。O: 原点

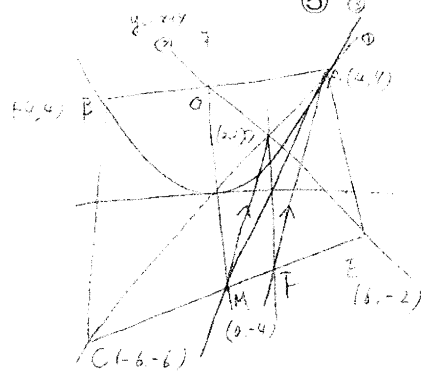
$$M\left(\frac{-6+6}{2}, \frac{-6-6}{2}\right) = (0, -4)$$

$$M(0, -4)$$

$$y = 4$$

$$y = 2$$

$$D(2, 2)$$



FはAを通りDMに平行な直線とCEとの交点

$$DM \text{ の式 } y = ax - 4 \quad (D(2, 2) \text{ を通る})$$

$$2 = 2a - 4$$

$$2a = 6$$

$$a = 3$$

$$\textcircled{4} y = 3x - 4$$

4. 1の解

AF < DM ① AF の式は A(4, 4) を通り傾き 3 の直線

$$y = 3x + b \quad A(4, 4) \text{ を通る}$$

$$4 = 12 + b$$

$$b = -8$$

$$\textcircled{AF} y = 3x - 8$$

CE の式 C(-6, -6) E(6, -2)

$$\begin{cases} -6 = -6a + b \\ -2 = 6a + b \end{cases}$$

$$\begin{cases} -6 = -6a - 6 \\ -2 = 6a - 6 \end{cases}$$

$$6a = 2$$

$$a = \frac{1}{3}$$

$$-8 = 2b$$

$$b = -4$$

$$\textcircled{CE} y = \frac{1}{3}x - 4$$

FはAFとCEの交点とする

$$\begin{cases} y = 3x - 8 \\ y = \frac{1}{3}x - 4 \end{cases}$$

$$3x - 8 = \frac{1}{3}x - 4$$

$$9x - 24 = x - 12$$

$$8x = 12$$

$$x = \frac{3}{2}$$

$$y = \frac{1}{3} \times \frac{3}{2} - 4 = -\frac{7}{2}$$

$$F\left(\frac{3}{2}, -\frac{7}{2}\right)$$

<追加Challenge!>

$$\textcircled{1} BCDG = \triangle CBA - \triangle ADG$$

$$= 8 \times 10 \times \frac{1}{2} - 4 \times 2 \times \frac{1}{2}$$

$$= 40 - 4$$

$$= 36$$

$$\triangle ADE = \triangle AEG - \triangle ADG$$

$$= 4 \times 6 \times \frac{1}{2} - 4 \times 2 \times \frac{1}{2}$$

$$= 12 - 4$$

$$= 8$$

$$BCDG : \triangle ADE$$

$$= 36 : 8$$

$$= 9 : 2 \quad \textcircled{15}$$

$$\textcircled{2} \triangle ADG : \triangle ADE : \triangle ADE : \triangle CED$$

$$= GD : DE = AD : CD$$

$$= 2 : 6 : 6 : 2 = 1 : 3 : 3 : 1$$

$$= 1 : 3 : 3 : 1$$

$$\triangle ADG : \triangle ADE : \triangle CED$$

$$= 1 : 3 : 3 : 1$$

$$= 1 : 3 : 3 : 1 \quad \textcircled{16}$$

