$\boxed{1}$

$$84 = 2^2 \times 3 \times 7$$
$$90 = 2 \times 3^2 \times 5$$

(1) 最大公約数は $2 \times 3 = \underline{6}$

(2) 最小公倍数は

$$2^2 \times 3^2 \times 5 \times 7 = \underline{1260}$$

(3)

$$\begin{array}{r} 5.88\cdots \\ 9\,\overline{)\,53} \\ \underline{45} \\ 80 \\ \underline{72} \\ 80 \\ \underline{72} \\ 8 \end{array}$$

$$\frac{53}{9} = 5.88\cdots$$
$$= \underline{5.\dot{8}}$$

(4) $\sqrt{2} < 2$ より $\sqrt{2} - 2 < 0$

$$\therefore |\sqrt{2} - 2| + 2$$
$$= -(\sqrt{2} - 2) + 2$$
$$= \underline{4 - \sqrt{2}}$$

(5)

$$\sqrt{45} - \sqrt{20} = \sqrt{3^2 \times 5} - \sqrt{2^2 \times 5}$$
$$= 3\sqrt{5} - 2\sqrt{5}$$
$$= (3-2)\sqrt{5}$$
$$= \underline{\sqrt{5}}$$

(6) $x^2 - 4 = (x+2)(x-2)$

(7) $f(x) = 2x^3 - 3x^2 - 3x + 2$

とおくと、$f(-1) = 0$ より

$f(x)$ は $(x+1)$ で割り切れる

(因数定理)

$$f(x) = (x+1)(2x^2 - 5x + 2)$$
$$= \underline{(x+1)(2x-1)(x-2)}$$

(8) 剰余定理より、あまりは

$$f(-1) = 2 \times (-1) - 1 - 3 - 4$$
$$= \underline{-10}$$

(9)

$$x^2 - x - 6 = 0$$
$$(x-3)(x+2) = 0$$
$$\therefore \underline{x = -2, 3}$$

(10)

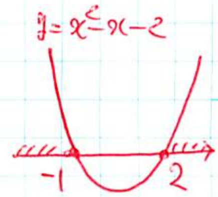
$$x^2 + x + 2 = 0$$

解の公式より

$$x = \frac{-1 \pm \sqrt{1-8}}{2} = \frac{-1 \pm \sqrt{-7}}{2}$$
$$= \underline{\frac{-1 \pm \sqrt{7}\,i}{2}}$$

(11)

$$x^2 - x - 2 > 0$$
$$(x-2)(x+1) > 0$$
$$\therefore \underline{x < -1,\ 2 < x}$$



(12) $f(x) = (x-2)^2 - 1$ より

$y = f(x)$ のグラフは下に凸。

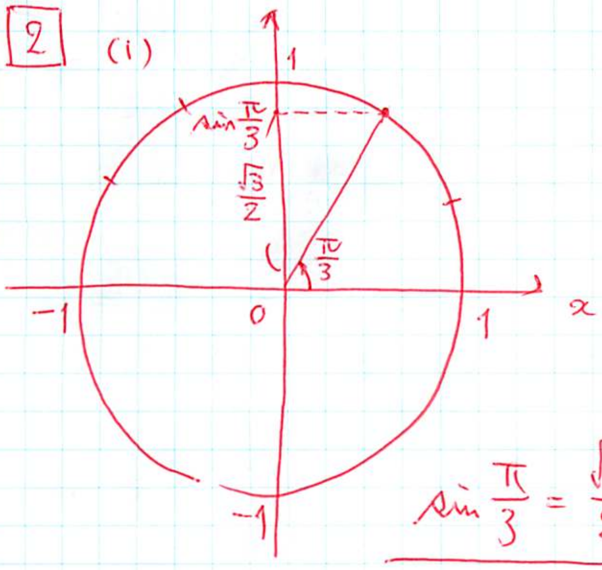
すなわち、頂点の y 座標が $f(x)$ の最小値である。

$$\therefore \underline{-1}$$

2010.6.3

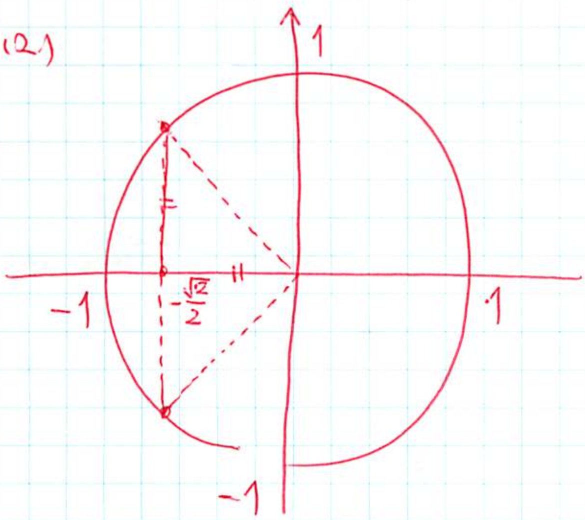
小テスト解 (No.1)

$\boxed{2}$ (1)



$$\sin\frac{\pi}{3} = \frac{\sqrt{3}}{2}$$

(2)



θは $\frac{3}{4}\pi$、$\frac{5}{4}\pi$ など

(3) $\cos\theta = \pm\sqrt{1-\sin^2\theta}$

$= \pm\sqrt{1-\frac{1}{9}} = \pm\sqrt{\frac{8}{9}}$

$= \pm\frac{2\sqrt{2}}{3}$

$\frac{\pi}{2} < \theta < \pi$ より $\cos\theta < 0$

$\therefore \cos\theta = \frac{-2\sqrt{2}}{3}$

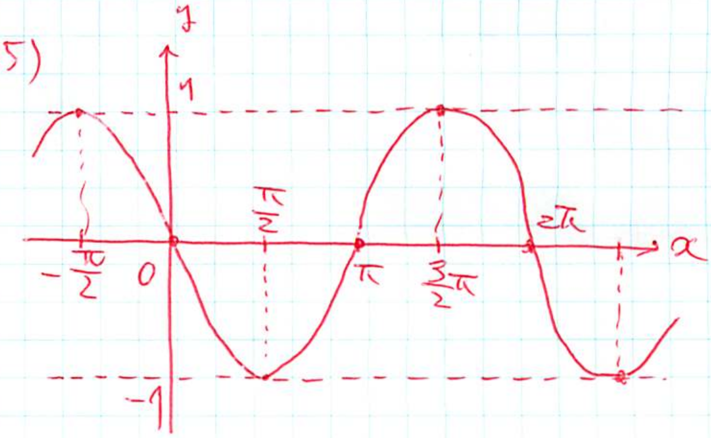
(4) $\cos\frac{\pi}{12} = \cos\left(\frac{\pi}{3} - \frac{\pi}{4}\right)$

$= \cos\frac{\pi}{3}\cos\frac{\pi}{4} + \sin\frac{\pi}{3}\cdot\sin\frac{\pi}{4}$

$= \frac{1}{2}\times\frac{\sqrt{2}}{2} + \frac{\sqrt{3}}{2}\times\frac{\sqrt{2}}{2}$

$= \frac{\sqrt{2}}{4} + \frac{\sqrt{6}}{4} = \frac{\sqrt{2}+\sqrt{6}}{4}$

(5)



$\boxed{3}$ (1) $\sqrt[3]{64} = \sqrt[3]{4^3} = (4^3)^{\frac{1}{3}} = 4$

(2) $\frac{1}{(\sqrt[5]{a})^3} = \frac{1}{a^{\frac{3}{5}}} = a^{-\frac{3}{5}}$

(3) $2^{\frac{1}{3}} \times 4^{\frac{4}{3}} \div 8^{-\frac{1}{3}}$

$= 2^{\frac{1}{3}} \times (2^2)^{\frac{4}{3}} \div (2^3)^{-\frac{1}{3}}$

$= 2^{\frac{1}{3}} \times 2^{\frac{8}{3}} \div 2^{-1}$

$= 2^{\frac{1}{3}} \times 2^{\frac{8}{3}} \times 2^{1}$

$= 2^{\frac{1}{3}+\frac{8}{3}+1}$

$= 2^4$

$= 16$

2010. 6. 3

小テスト解答 (No. 2)