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1) $f(x) = -(x-6)^6 \qquad x = 5$

$f'(x) = -6(x-6)^5 \qquad f'(5) = -6(5-6)^5 = -6(-1)^5 = 6$

Угловой коэффициент касательной $\boxed{m = 6}$

2) $y = 3x^3 - 4x^2 + 3$

$y' = 9x^2 - 8x \qquad 9x^2 - 8x = 1 \qquad 9x^2 - 8x - 1 = 0$

$x = \frac{8 \pm \sqrt{64+36}}{18}$

$\boxed{x_1 = \frac{8+10}{18} = 1 \qquad x_2 = \frac{8-10}{18} = -\frac{1}{9}}$

3) $y = \frac{2}{\sqrt{3}} \cos\frac{x}{2} - \sqrt{2} \qquad x = 5\pi$

$y' = -\frac{2}{2\sqrt{3}} \sin\frac{x}{2} \qquad tg\alpha = -\frac{1}{\sqrt{3}} \sin\frac{5\pi}{2} = -\frac{1}{\sqrt{3}}$

$\boxed{\alpha = -\frac{\pi}{6} = -30^\circ = 150^\circ}$