חישוב לפי - נגזרות (ה cos) (8)

$$\cos\theta = \frac{a^2+b^2-c^2}{2ab}$$

$$\frac{\partial \cos\theta}{\partial a} = \frac{2a\cdot 2ab - 2b(a^2+b^2-c^2)}{4a^2b^2} = \frac{4a^2b-2a^2b-2b^3+2bc^2}{4a^2b^2}$$

$$= \frac{\cancel{2}a^2\cancel{b}-\cancel{2}\cancel{b^3}^{\,2}+\cancel{2}\cancel{b}c^2}{2\cancel{4}a^2b^{\cancel{2}}} = \boxed{\frac{a^2-b^2+c^2}{2a^2b} = \frac{\partial\cos\theta}{\partial a}}$$

$$\frac{\partial \cos\theta}{\partial b} = \frac{2b\cdot 2ab - 2a(a^2+b^2-c^2)}{\cancel{2}\,4a^2b^2} = \frac{4ab^2-2a^3-2ab^2+2ac^2}{4a^2b^2}$$

$$= \frac{\cancel{2}\cancel{a}b^2-\cancel{2}\cancel{a^3}^{\,2}+\cancel{2}\cancel{a}c^2}{2\cancel{4}a^2b^2} = \boxed{\frac{b^2-a^2+c^2}{2ab^2} = \frac{\partial\cos\theta}{\partial b}}$$

$$\frac{\partial \cos\theta}{\partial c} = \frac{-\cancel{2}c\cdot\cancel{2}\cancel{ab}}{\cancel{4}a^{\cancel{2}}b^{\cancel{2}}} = \boxed{-\frac{c}{ab} = \frac{\partial\cos\theta}{\partial c}}$$