

Γ ΛΥΚΕΙΟΥ ΜΕΡΟΣ Α

15.2 1)

$$\alpha) (x^{10})' = 10x^{10-1} = 10x^9$$

$$\beta) (x^{-6})' = -6x^{-6-1} = -6x^{-7}$$

$$\gamma) \left(\frac{1}{x^5}\right)' = (x^{-5})' = -5x^{-5-1} = -5x^{-6} = -\frac{5}{x^6}$$

$$\delta) \left(x^{\frac{5}{8}}\right)' = \frac{5}{8}x^{\frac{5}{8}-1} = \frac{5}{8}x^{-\frac{3}{8}} = \frac{5}{8\sqrt[8]{x^3}}$$

$$\epsilon) \left(\sqrt[4]{x^9}\right)' = \left(x^{\frac{9}{4}}\right)' = \frac{9}{4}x^{\frac{9}{4}-1} = \frac{9}{4}x^{\frac{5}{4}} = \frac{9}{4\sqrt[4]{x^5}}$$

$$\sigma\tau) \left(\frac{1}{\sqrt[7]{x^3}}\right)' = \left(x^{-\frac{3}{7}}\right)' = -\frac{3}{7}x^{-\frac{3}{7}-1} = -\frac{3}{7}x^{-\frac{10}{7}} = -\frac{3}{10\sqrt[7]{x^{10}}}$$

15.2 2)

$$(x^3)' = 3x^{3-1} = 3x^2$$

15.2 3)

$$(x^6)' = 6x^{6-1} = 6x^5$$

15.2 4)

$$(x^8)' = 8x^{8-1} = 8x^7$$

15.2 5)

$$(x^5)' = 5x^{5-1} = 5x^4$$

15.2 6)

$$(x^{-4})' = -4x^{-4-1} = -4x^{-5} = -\frac{4}{x^5}$$

15.2 7)

$$(x^{-7})' = -7x^{-7-1} = -7x^{-8} = -\frac{7}{x^8}$$

15.2 8)

$$\left(\frac{1}{x^9}\right)' = (x^{-9})' = -9x^{-9-1} = -9x^{-10} = -\frac{9}{x^{10}}$$

15.2 9)

$$\left(\frac{1}{x^2}\right)' = (x^{-2})' = -2x^{-2-1} = -2x^{-3} = -\frac{2}{x^3}$$

15.2 10)

$$\left(x^{\frac{5}{3}}\right)' = \frac{5}{3}x^{\frac{5}{3}-1} = \frac{5}{3}x^{\frac{2}{3}} = \frac{5}{3}\sqrt[3]{x^2}$$

15.2 11)

$$\left(x^{-\frac{3}{7}}\right)' = -\frac{3}{7}x^{-\frac{3}{7}-1} = -\frac{3}{7}x^{-\frac{10}{7}} = -\frac{3}{7\sqrt[7]{x^{10}}}$$

15.2 13)

$$\left(\sqrt[6]{x^5}\right)' = \left(x^{\frac{5}{6}}\right)' = \frac{5}{6}x^{\frac{5}{6}-1} = \frac{5}{6}x^{-\frac{1}{6}} = \frac{5}{6\sqrt[6]{x}}$$

15.2 13)

$$\left(\frac{1}{\sqrt[8]{x^3}}\right)' = \left(x^{-\frac{3}{8}}\right)' = -\frac{3}{8}x^{-\frac{3}{8}-1} = -\frac{3}{8}x^{-\frac{11}{8}} = -\frac{3}{8\sqrt[8]{x^{11}}}$$