

①

$$f(x) = \sqrt{x-1}$$

مجال الدالة

$$x-1 \geq 0$$

$$x \geq +1$$

$$[+1, +\infty)$$

②

③

④

$$f(x) = \frac{x+7}{x^2-1}$$

$$(x-1)(x+1)$$

$$R - \{-1, 1\}$$

المجال هو

⑤

$$f(x) = \log(2x)$$

مجال الدالة

⑥

$$2x > 0$$

$$x > 0$$

$$(0, +\infty)$$

$$f(x) = x^3 + 4x^2 + 7x - 5$$

مجال الدالة

⑦

ℝ

هو

ما دام لا يوجد كسرا أو جذر

أو وما  
النتائج R على طول

$$y = 2x^3 + 3x^2 + 6x + 5$$

(6)

$$\frac{d^2 y}{dx^2} =$$

$$y' = 6x^2 + 6x + 6$$

$$y'' = 12x + 6$$

$$y = x^4$$

(7)

$$\frac{dy}{dx} = y' = 4x^3$$

$$y = \bar{x}^{-1}$$

$$y' = -1 \bar{x}^{-2} =$$

$$Q_p = 25 - 5P$$

(7)

$$Q_p = 25 - 5 \times 3 = 10$$

$$5 = 25 - 5P$$

$$5 - 25 = -5P$$

$$\frac{-20}{-5} = \frac{-5P}{-5}$$

$$P = 4$$

(7)

د) (c)

$$Q_p = Q_s$$

(a)

$$200 - P = P - 100$$

$$200 + 100 = P + P$$

$$\frac{300}{2} = \frac{2P}{2}$$

$$P = 150$$

$$Q_p = 200 - 150 = 50 \quad (1)$$

$$Q_s = 150 - 100 = 50$$

$$نقطة y = x^3 + 2x^2 + x + 1 \quad (1)$$

$$y' = 3x^2 + 4x + 1$$

$$x=1 \text{ عند } 3(1)^2 + 4(1) + 1 = 8$$

$$y = 6x^3 - 1 \quad (1c)$$

$$y' = 18x^2$$

$$y'' = 36x$$

$$x=5 \text{ عند } = 36 \times 5 = 180$$

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

(1)

$$g(x) = x + 2$$

$$\begin{aligned}(f+g)(x) &= x^2 - 3x + x + 2 \\ &= x^2 - 2x + 2\end{aligned}$$

$$\begin{aligned}(f \times g)(x) &= x^3 + 2x^2 - 3x^2 - 6x \\ &= x^3 - x^2 - 6x\end{aligned}$$

$$\begin{aligned}(f \circ g)(3) &= f(g(3)) = f(5) = 5^2 - 3(5) \\ &= 10\end{aligned}$$

$$y = 9x^{\frac{1}{3}}$$

$$y' = 3x^{-\frac{2}{3}}$$

(5)

$$z = 2x^2y + y^2$$

(12)

$$\frac{\partial z}{\partial x} = z'_x = 4xy$$

$$A = \{1, 2, 3\}, B = \{1, 3, 5\}$$

$$U = \{1, 2, 3, 4, 5, 6, 7\}$$

$$A \cap B = \{1, 3\}$$

$$\overline{A} = \{4, 5, 6, 7\}$$

$$\overline{B} = \{2, 4, 6, 7\}$$

$$\overline{A} \cup \overline{B} = \{4, 5, 6, 7, 2\}$$

باز ایا گاه  $f(x) = x^3 - 3x^2$  خاتمه للوالد

فتمین در  $x$  است

$$f'(x) = 3x^2 - 6x = 0$$

→ حالت مشترک نمی دهیم ایا گاه

$$3x(x-2) = 0$$

$$x=0 \quad x=2$$

$$f''(x) = 6x - 6 = 0$$

$$\frac{6x}{6} = \frac{6}{6}$$

$$x=1$$

تعریف  $x=1$

$$f(1) = (1)^3 - 3(1)^2 = 1 - 3 = -2$$

(٢٤) ميل المستقيم المار بالنقطتين (4, 3) و (7, 4) هو

$$\begin{aligned} \text{الميل} &= \frac{y_2 - y_1}{x_2 - x_1} \\ &= \frac{4 - 3}{7 - 4} = \frac{1}{3} \end{aligned}$$

(٢٥) معادله المستقيم الذي ميله  $m=1$  وسقطه على المحاور  $b=3$

$$y = 1x + 3 \quad \left( \begin{array}{l} y = mx + b \\ \downarrow \\ \text{الميل} \quad \text{السقطه على المحاور} \end{array} \right)$$

(٢٦) معادله المستقيم الذي يمر بـ (3, 3) ويكونا زوايا المستقيم

$$3x + y = 6$$

$$y = 6 - 3x$$

الميل هو 3

$$y = 3x + b$$

نعوض النقطة (3, 3)

$$3 = 3(3) + b$$

$$3 - 9 = b, \quad b = -6$$

$$y = 3x - 6$$

4)

$$\int_0^1 x dx = \frac{x^2}{2} \Big|_0^1$$

(Cv)

$$= \frac{1^2}{2} - \frac{0^2}{2} = \frac{1}{2}$$

$$\int (2x+1)^4 dx$$

(Cv)

$$= \frac{(2x+1)^5}{5 \times 2} + C$$

$$= \frac{1}{10} (2x+1)^5 + C$$

$$\int 2(e^x) dx = 2e^x + C$$

(Cv)

$$\int (x^4 + 2x - 5) dx$$

(Cv)

$$= \frac{x^5}{5} + \frac{2x^2}{2} - 5x + C$$

$$\int (3x^2 + 2x + 5) dx$$

(Cv)

$$= \left[ \frac{3x^3}{3} + \frac{2x^2}{2} + 5x \right]_1^2 = (2^3 + 2^2 + 10) - (1^3 + 1^2 + 5) = 22 - 7 = 15$$

$$\int \sin x \, dx = -\cos x + C \quad (16)$$

$$\frac{dy}{dx} = x^2 y^{-2} \quad \text{مساواة (17)}$$

$$\frac{dy}{dx} \times \frac{x^2}{y^2}$$

$$\int y^2 dy = \int x^2 dx$$

$$\frac{y^3}{3} = \frac{x^3}{3} + C$$

$$\lim_{x \rightarrow 3} f(x) = 4 \quad \text{القيمة (18)}$$

$$\lim_{x \rightarrow 3} g(x) = 12$$

$$\lim_{x \rightarrow 3} [f(x) - g(x)] = 4 - 12 = -8$$

$$4 \times 12 = 48 \quad (19)$$

$$\frac{5 \times 12}{4} = 15 \quad (20)$$

$$x^2 + y^2 = 25$$

(۲۶)

مربع

$$A(x) = 2x - 1$$

(۲۸)

$$\frac{f(3.4) - f(3)}{3.4 - 3}$$

$$3.4 - 3$$

$$= \frac{5.8 - 5}{0.4} = \frac{0.8}{0.4} = 2$$

۳، صراف، الی ۱ علی

(۲۹)

۲، صراف، الی ۱ ب

(۳۰)

$$3x - 5 < 10$$

(۳۱)

$$3x < 15$$

$$x < 5$$

$$(-\infty, 5)$$

$$5x - 6 > 11$$

(۳۲)

$$5x > 17$$

$$x > \frac{17}{5} = 3.4$$

$$(3.4, \infty)$$

$$\left| \frac{3x+1}{2} \right| \leq 1 \quad (٤٣)$$

$$\downarrow$$

$$-1 \leq \frac{3x+1}{2} \leq 1$$

$$-2 \leq 3x+1 \leq 2$$

$$-2-1 \leq 3x \leq 2-1$$

$$-3 \leq 3x \leq 1$$

$$-1 \leq x \leq \frac{1}{3}$$

$$\left[ -1, \frac{1}{3} \right]$$

(٤٤)  $y = 2x + 3$  خانم الكو  
 ضربا ب 2 و صعد 3 اذ لم الكو  
 نطه 3 و قسم على 2 :  $x = \frac{y-3}{2}$

$$\lim_{x \rightarrow 2} \sqrt[3]{x^2 + 2x} = \quad (20)$$

$$\sqrt[3]{2^2 + 2 \cdot 2} = \sqrt[3]{4 + 4} = \sqrt[3]{8} = 2$$

$$\lim_{x \rightarrow 2} \frac{x^2 - 4}{x - 2} = \frac{0}{0} \quad (21)$$

$$\lim_{x \rightarrow 2} \frac{(x-2)(x+2)}{(x-2)} = 4$$

$$\lim_{x \rightarrow \infty} \frac{x^4 + 5x - 1}{x^3 + 3} = \infty \quad (22)$$

$$\lim_{x \rightarrow 5} 5 = 5 \quad (23)$$

$$A = \{1, 2\}, B = \{3, 4\} \quad (24)$$

$$A \times B = \{(1, 3), (1, 4), (2, 3), (2, 4)\}$$

$$f(x) = x^4 + x^2 \quad (25)$$

المعلم