

( )  $m_1 \cdot m_2 = -1$  .

$$m = \frac{y_2 - y_1}{x_2 - x_1} \quad "$$

$$m_{AB} = \frac{4-2}{5-1} = \frac{2}{4} = \frac{1}{2}$$

$$-2 \quad BC \quad \angle B = 90^\circ$$

$$y - y_1 = m(x - x_1)$$

$$m = -2, \quad \begin{matrix} x_1 \\ y_1 \end{matrix} \begin{matrix} 5 \\ 4 \end{matrix}$$

$$y - 4 = -2(x - 5)$$

$$y - 4 = -2x + 10$$

$$y = -2x + 14$$

$$y = -2x + 14 \quad BC$$

AC , C

$$y_C = 0, \quad x - \quad C$$

$$BC \quad y \quad 0$$

$$0 = y = -2x + 14 \rightarrow 2x = 14 \rightarrow x = 7$$

$$C(7,0) \quad C$$

$$x = \frac{x_1 + x_2}{2}, y = \frac{y_1 + y_2}{2}$$

$$x_D = \frac{7+1}{2} = \frac{8}{2} = 4, y_D = \frac{0+2}{2} = \frac{2}{2} = 1$$

$$D(4,1) \quad , \quad , D$$

$$(x-4)^2 + (y-1)^2 = R^2$$

$$(7-4)^2 + (0-1)^2 = R^2 \rightarrow R^2 = 10 \quad C(7,0)$$

$$(x-4)^2 + (y-1)^2 = 10 \quad \underline{\hspace{2cm}} :$$

"

, y - x -

, 25% -

$$\frac{100-25}{100}x = \frac{75}{100}x = 0.75x$$

20% -

$$\frac{100+20}{100}y = \frac{120}{100}y = 1.2y$$

0.75x	0.75x	1		
1.2y	1.2y	1		

40 - (1)

$x + 40 = y$  ,

$0.75x + 1.2y = 282$  , 282 (2)

1

$$\begin{cases} x + 40 = y \\ 0.75x + 1.2y = 282 \end{cases}$$

$$0.75x + 1.2(x + 40) = 282$$

$$1 \cdot 0.75x + 1.2x + 48 = 282 \quad \text{!!}$$

$$1.95x = 234$$

$$x = 120 \rightarrow y = 120 + 40 = 160$$

1

1 :

. 160 120

$$y = \frac{x}{A} + \frac{3}{x}$$

$$f'(3) = 0, \quad x = 3$$

$$y = \frac{x}{A} + \frac{3}{x} \rightarrow y' = \frac{1}{A} - \frac{3}{x^2}$$

$$f'(3) = 0 \rightarrow 0 = \frac{1}{A} - \frac{3}{3^2} \rightarrow \frac{1}{3} = \frac{1}{A} \rightarrow A = 3$$

$$A = 3 :$$

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

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

$$y' = \frac{1}{3} - \frac{3}{x^2} \rightarrow y' = \frac{x^2 - 9}{3x^2}$$

$$0 = \frac{x^2 - 9}{3x^2} \rightarrow 0 = x^2 - 9 \rightarrow 9 = 9 \rightarrow x = \pm 3$$

$$y(3) = \frac{3}{3} + \frac{3}{3} = 2, \quad y(-3) = \frac{-3}{3} + \frac{3}{-3} = -2$$

( )

$$f'(-4) = (-4)^2 - 9 > 0, \quad f'(-2) = (-2)^2 - 9 < 0$$

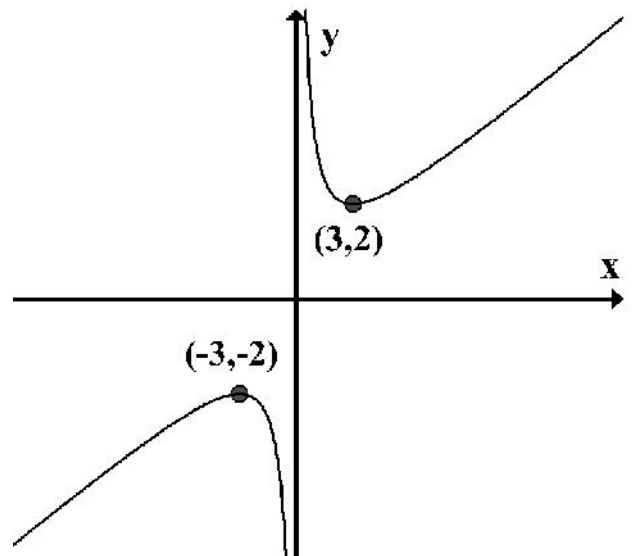
$$f'(2) = 2^2 - 9 < 0, \quad f'(4) = 4^2 - 9 > 0$$

-4	-3	-2	0	2	3	4	x
+	0	-	$x \neq 0$	-	0	+	$y'$
↖	<b>Max</b>	↘		↘	<b>Min</b>	↖	

$$y'' = 2x \rightarrow y''(3) = 2 \cdot 3 > 0 \rightarrow \text{min} \quad y''(-3) = 2 \cdot (-3) < 0 \rightarrow \text{max}$$

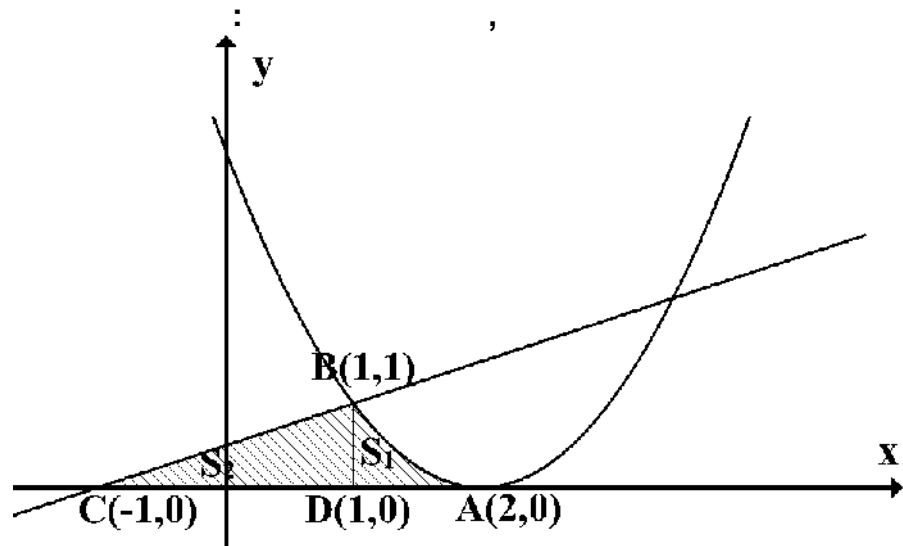
(3,2) , (-3,-2) :

x ,  $x \neq 0$



x = 0

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$x_A = 2$  ,  $f(x) = (x-2)^2$  A

B

$$\begin{cases} y = x^2 - 4x + 4 \\ y = \frac{1}{2}x + \frac{1}{2} \end{cases}$$

$$x^2 - 4x + 4 = \frac{1}{2}x + \frac{1}{2} \Leftrightarrow x^2 - 4.5x + 3.5 = 0$$

$$\Leftrightarrow x_1 = 3.5, x_2 = 1$$

(1,1) B 1  $x_B = 1$

$$S_2 = S_{ABCD} = \frac{CD \cdot BD}{2} = \frac{2 \cdot 1}{2} = 1 : S_2$$

$S_1$	
$f(x) = (x-2)^2 = x^2 - 4x + 4$	
$y = 0$	
$x_D = 2$	x
$x_B = 1$	x

$$S_1 = \int_1^2 (x^2 - 4x + 4 - 0) dx = \left[ \frac{x^3}{3} - \frac{4x^2}{2} + 4x \right]_1^2$$

$$S_1 = \left( \frac{2^3}{3} - 2 \cdot 2^2 + 4 \cdot 2 \right) - \left( \frac{1^3}{3} - 2 \cdot 1^2 + 4 \cdot 1 \right) = 2 \frac{1}{3} - 2 \frac{1}{3} = \frac{1}{3}$$

$$S = S_1 + S_2 = \frac{1}{3} + 1 = 1 \frac{1}{3}$$

$$1 \frac{1}{3}$$