

• 20 (1) .

, 70%

• , $\frac{100+70}{100} \cdot 20 = 1.7 \cdot 20 = 34$

• 34 :

• - y • - x : (2)

• $x + y = 120$, 120

()		()	
20x	x	20	
34y	y	34	

• $20x + 34y = 2946$: , 2,946

:

$$\begin{cases} x + y = 120 \rightarrow \boxed{y = 120 - x} \\ 20x + 34y = 2946 \end{cases}$$

$$20x + 34(120 - x) = 2946$$

$$20x + 4080 - 34x = 2946$$

$$-14x = -1134 \quad /: (-14)$$

$$\boxed{x = 81}$$

$$\boxed{x = 81}$$

$$y = 120 - 81 \rightarrow \boxed{y = 39}$$

• (39 -) 81 :

. 50%

, 60%

$$\cdot \frac{100+60}{100} \cdot 20 = 1.6 \cdot 20 = 32 \quad (1)$$

$$\cdot \frac{100+50}{100} \cdot 34 = 1.5 \cdot 34 = 51$$

$$\cdot 81 \cdot 32 + 39 \cdot 51 = 4581$$

$$\cdot 4,581 \quad , \quad 120 \quad :$$

$$\cdot 4581 - 2946 = 1635 \quad (2)$$

$$\cdot \frac{1635}{2946} = 0.555$$

$$\cdot 0.555 \cdot 100\% = 55.5\%$$

$$\cdot 55.5\% \quad , \quad 120 \quad , \quad :$$

. C(4, -4) - A(0, -6) AC .
 . AC (1)

$$m_{AC} = \frac{y_C - y_A}{x_C - x_A} = \frac{-4 - (-6)}{4 - 0} = \frac{2}{4} = \frac{1}{2}$$

. $\frac{1}{2}$ AC :

. $\frac{1}{2}$, A(0, -6) , AC (2)

$$y - (-6) = \frac{1}{2}(x - 0) \rightarrow \boxed{y = \frac{1}{2}x - 6}$$

. $y = \frac{1}{2}x - 6$ AC :

: AB $y_B = 0$. $y_B = 0$, x - B .

$$\begin{aligned} 0 &= 3x - 6 \\ -3x &= -6 \quad /: (-3) \\ x &= 2 \rightarrow \boxed{B(2, 0)} \end{aligned}$$

. B(2, 0):

. AD C , AC = CD .

$$\begin{aligned} -4 &= \frac{-6 + y_D}{2} & 4 &= \frac{0 + x_D}{2} \\ -8 &= -6 + y_D & 8 &= x_D \\ -2 &= y_D & & \end{aligned}$$

. D(8, -2) :

. ABD .

$$\left. \begin{aligned} d_{AB} &= \sqrt{(2-0)^2 + (0-(-6))^2} = \sqrt{40} \\ d_{DB} &= \sqrt{(2-8)^2 + (0-(-2))^2} = \sqrt{40} \end{aligned} \right\} \boxed{AB = DB}$$

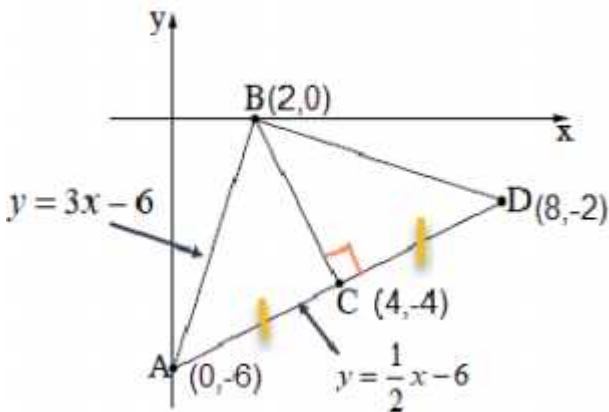
. AB = DB , ΔABD :

. ABD AD BC- .

$$\left. \begin{aligned} d_{AD} &= \sqrt{(0-8)^2 + (-6-(-2))^2} = \sqrt{80} \\ d_{BC} &= \sqrt{(2-4)^2 + (0-(-4))^2} = \sqrt{20} \end{aligned} \right\} S_{ABD} = \frac{AD \cdot BC}{2} = \frac{\sqrt{80} \cdot \sqrt{20}}{2} = 20$$

. " 20 ΔABD :

"



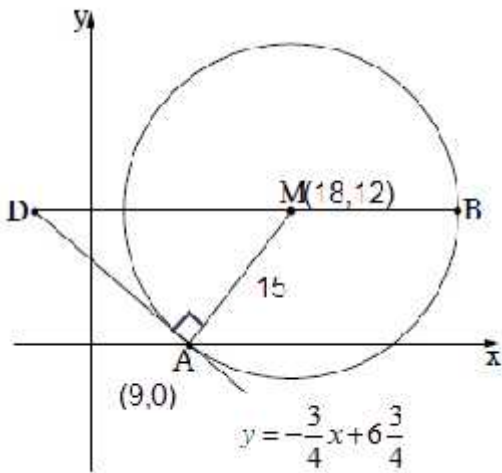
. A(9, 0) , M(18, 12) .
 . (1)

$$R = d_{MA} = \sqrt{(18-9)^2 + (12-0)^2} = 15$$

. 15 :

. 15 , M(18, 12) , (2)

$$. (x-18)^2 + (y-12)^2 = 225 :$$



, $m_{\text{mashik}} \cdot m_{AM} = -1$:

, AM - , BM (1)

$$m_{AM} = \frac{y_M - y_A}{x_M - x_A} = \frac{12 - 0}{18 - 9} = \frac{12}{9} = \frac{4}{3}$$

. $-\frac{3}{4}$ ()

. $-\frac{3}{4}$ A :

. $-\frac{3}{4}$, A(9, 0) , (2)

$$y - 0 = -\frac{3}{4}(x - 9)$$

$$\boxed{y = -\frac{3}{4}x + 6\frac{3}{4}}$$

. $y = -\frac{3}{4}x + 6\frac{3}{4}$:

"

• $y_D = y_M = 12$, D BM (1) .

• $y_D = 12$

$$12 = -\frac{3}{4}x + 6\frac{3}{4}$$

$$\frac{3}{4}x = -\frac{21}{4} \quad /: (\frac{3}{4})$$

$$x = 7 \rightarrow \boxed{D(-7, 12)}$$

$$DM = x_M - x_D = 18 - (-7) = 25$$

• 25 DM :

• ΔADM (2)

$$S_{\Delta ADM} = \frac{AM \cdot AD}{2} :$$

$$DM = 25$$

$$h_{DM} = 12 - 0 = 12$$

$$S_{\Delta ADM} = \frac{25 \cdot 12}{2}$$

$$\boxed{S_{\Delta ADM} = 150}$$

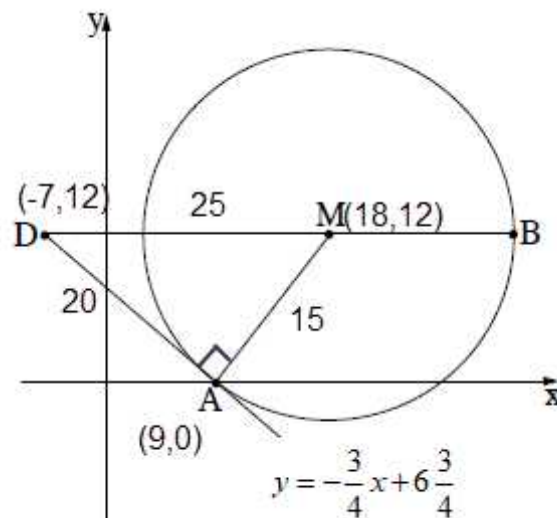
$$d_{AM} = R = 15$$

$$d_{AD} = \sqrt{(9 - (-7))^2 + (0 - 12)^2} = 20$$

$$S_{\Delta ADM} = \frac{15 \cdot 20}{2}$$

$$\boxed{S_{\Delta ADM} = 150}$$

• " 150 ΔADM :



$$f(x) = -\frac{1}{6}x + \sqrt{x}$$

$x \geq 0$:
 $x \geq 0$:

$$f'(x) = -\frac{1}{6} + \frac{1}{2\sqrt{x}}$$

$$0 = -\frac{1}{6} + \frac{1}{2\sqrt{x}} \quad | \cdot 6\sqrt{x}$$

$$0 = -\sqrt{x} + 3$$

$$\sqrt{x} = 3$$

$$x = 9 \rightarrow f(9) = -\frac{1}{6} \cdot 9 + \sqrt{9} = 1.5 \rightarrow (9, 1.5)$$

$$f'(8) = -\frac{1}{6} + \frac{1}{2\sqrt{8}} > 0, \quad f'(10) = -\frac{1}{6} + \frac{1}{2\sqrt{10}} < 0$$

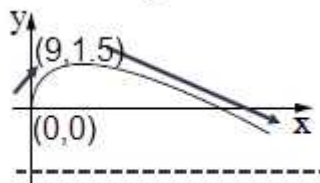
0	8	9	10	x
	+	0	-	f'(x)
	↖	Max	↘	

(9, 1.5) :

$$(0, 0), \quad f(0) = -\frac{1}{6} \cdot 0 + \sqrt{0} = 0 \rightarrow (0, 0) : y -$$

(0, 0) :

III



III y = -3

$$k < 0, \quad y = k$$

$$y = -3$$

$$y = -3 :$$

.B - A $f(x) = 2x^3 + 2x^2 - 2x$

. $f'(x) = 0$

$f'(x) = 6x^2 + 4x - 2$

$6x^2 + 4x - 2 = 0$

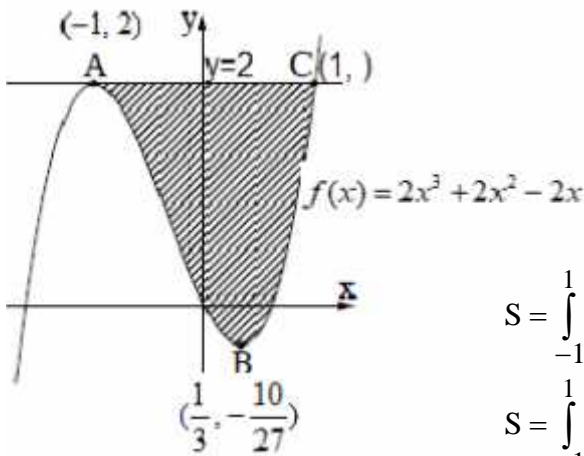
$x_{1,2} = \frac{-2 \pm \sqrt{4^2 - 4 \cdot 6 \cdot (-2)}}{2 \cdot 6}$

$x_{1,2} = \frac{-4 \pm 8}{12}$

$x_1 = \frac{-4 + 8}{12} = \frac{4}{12} = \frac{1}{3} \rightarrow y = 2 \cdot \left(\frac{1}{3}\right)^3 + 2 \cdot \left(\frac{1}{3}\right)^2 - 2 \cdot \left(\frac{1}{3}\right) = -\frac{10}{27} \rightarrow \boxed{B\left(\frac{1}{3}, -\frac{10}{27}\right)}$

$x_2 = \frac{-4 - 8}{12} = \frac{-12}{6} = -1 \rightarrow y = 2 \cdot (-1)^3 + 2 \cdot (-1)^2 - 2 \cdot (-1) = 2 \rightarrow \boxed{A(-1, 2)}$

. $B\left(\frac{1}{3}, -\frac{10}{27}\right), A(-1, 2)$:



. $y = 2$,

. $y = 2$:

$S = \int_{-1}^{\frac{1}{3}} (2 - (2x^3 + 2x^2 - 2x)) dx$

$S = \int_{-1}^{\frac{1}{3}} (2 - 2x^3 - 2x^2 + 2x) dx$

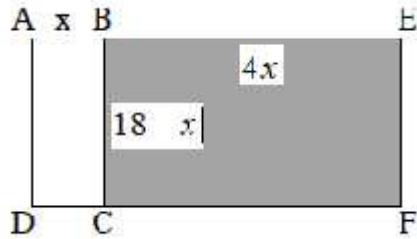
$S = 2x - \frac{2x^4}{4} - \frac{2x^3}{3} + \frac{2x^2}{2} \Big|_{-1}^{\frac{1}{3}}$

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

$S = \frac{11}{6} - \left(-\frac{5}{6}\right)$

$\boxed{S = 2\frac{2}{3}}$

. " $2\frac{2}{3}$:



. " 36 ABCD .
 . $2x + 2BC = 36$,
 . $BC = 18 - x$. $x + BC = 18$, 2 -
 . $BC = 18 - x$:

. $BE = 4x$, AB AB BE .
 . $4x(18 - x) = 72x - 4x^2$ BEFC (1)
 . $72x - 4x^2$ BEFC :

. BEFC **πιν'ορν** (2)

$S(x) = 72x - 4x^2$

$S'(x) = 72 - 8x$

$0 = 72 - 8x$

$8x = 72 \quad /:8$

$x = 9$

. $(x > 0)$)

$S'(8) = 72 - 8 \cdot 8 > 0, \quad S'(10) = 72 - 8 \cdot 10 < 0$

0	8	9	10	x
	+	0	-	y'
	↗	Max	↘	

. BEFC , $x = 9$: