

Vraag 1:

$$\begin{aligned}1.1.1. \quad T_3 - T_2 &= T_2 - T_1, \dots \\x-1-(x+2) &= b(x+2)-(3x-1) \\-3 &= -2x+3 \\2x &= 6 \\&\checkmark \quad x = 3 \quad (5) \quad [x_0]\end{aligned}$$

$$\begin{aligned}1.1.2. \quad T_1 &= 8 \\T_2 &= 5 \\T_3 &= 2 \quad (4)\end{aligned}$$

$$\begin{aligned}1.2.1. \quad T_{30} &= a + 29d \\&= -7 + 29(-5) \\&= -7 - 145 \\&= -152 \quad (3)\end{aligned}$$

$$\begin{aligned}1.2.2. \quad S_n &= \frac{n}{2} [2a + (n-1)d] \\&= \frac{n}{2} [2(-7) + (n-1)(-5)] \\&= 6(-14 + 11(-5)) \\&= 6(-14 - 55) \\&= 6(-69) \\&= -414 \quad (6)\end{aligned}$$

$$\begin{aligned}1.3. \quad T_n &= 6n! - 7 \\&= 6(\frac{1}{8})! - 7 \\&= 48! - 7 \\&= 4! \quad (3)\end{aligned}$$

$$\begin{aligned}1.4. \quad 41 &= 7 + (n-1)2 \quad (1) \\&\therefore 41 = 7 + 2n - 2 \\&\therefore 2n = -36 \\&\therefore n = 18 \quad (1) \quad (5) \quad [x_0]\end{aligned}$$

Vraag 2:

$$\begin{aligned}2.1.1. \quad T_8 &= ar^7 = 1448 \\T_4 &= ar^3 = 28 \\r^4 &= 16 \\r^4 &= 2^4 \\r &= 2. \quad (5)\end{aligned}$$

$$\begin{aligned}2.1.2. \quad a(2)^3 &= 28 \\a(8) &= 28 \\a &= 3\frac{1}{2}. \quad (3)\end{aligned}$$

$$\begin{aligned}2.2. \quad S_n &= \frac{a(r^n - 1)}{r - 1} \\&= 4(3\frac{1}{2})^{n-1} \\&= \frac{4(-28)}{2} \\&= \frac{2912}{2} \\&= 1456 \quad (4)\end{aligned}$$

$$\begin{aligned}2.3. \quad T_n &= ar^{n-1} \\128 &= 4(2)^{n-1} \\32 &= 2^{n-1} \\2^5 &= 2^{n-1} \\6 &= n. \quad (6)\end{aligned}$$

$$\begin{aligned}2.4. \quad T_n &= \frac{1}{8}(2)^{n-1} \\&= \frac{1}{8}(2)^{7-1} \\&= \frac{1}{8}(2)^6 \\&= \frac{1}{8}(64) = 8. \quad [21] \quad (3)\end{aligned}$$

Vraag 3 | Question 3:

$$\begin{aligned}3.1.1. \quad &\frac{32^{\frac{7}{5}} \cdot 8^{-\frac{3}{4}}}{8^{\frac{3}{4}}} \\&= \frac{(2^5)^{\frac{7}{5}} \cdot (2^3)^{-\frac{3}{4}}}{(2^3)^{\frac{3}{4}}} \\&= \frac{2^7 \cdot 2^{-3}}{2^3} \quad (5)\end{aligned}$$

$$\begin{aligned}3.1.2. \quad &\frac{2^{\frac{x-1}{5}} \cdot 8^{\frac{3(x-2)}{4}}}{16^{\frac{x-1}{4}}} \\&= \frac{2^{\frac{x-1}{5}} \cdot 2^{\frac{3(4x-8)}{4}}}{2^{\frac{4(x-1)}{4}}} \quad (1) \\&= \frac{2^{\frac{x-1}{5}} \cdot 2^{\frac{3(4x-8)}{4}}}{2^{\frac{4x-4}{4}}} \quad (1) \\&= 2^{\frac{x-1+3x-6-4x+4}{5}} \quad (1) \\&= 2^{-2} \\&= \frac{1}{4} \quad (5)\end{aligned}$$

$$\begin{aligned}3.1.3. \quad &\sqrt[7]{75} - \sqrt[5]{27} + 2\sqrt{12} \\&= \sqrt[7]{25 \cdot 3} - \sqrt[5]{9 \cdot 3} + 2\sqrt{4 \cdot 3} \quad (1) \\&= 5\sqrt[7]{3} - 3\sqrt[5]{3} + 4\sqrt{3} \quad (1) \\&= 6\sqrt[7]{3} \quad (5)\end{aligned}$$

$$\begin{aligned}3.2.1. \quad &\frac{4^{2x}}{2^{2(2x)}} = \frac{8^{3x-5}}{2^{3(2x-5)}} \quad -\text{ontbrek.} \\&\therefore 4^{2x} = 8^{3x-5} \quad -\text{uitmaat.} \\&\therefore 4^{2x} = 2^{3(2x-5)} \quad -\text{gef. geset.} \\&\therefore -5x = -15 \\&\therefore x = 3 \quad (6)\end{aligned}$$

$$\begin{aligned}3.2.2. \quad &\frac{\frac{1}{2}x^{\frac{1}{3}}}{\frac{1}{2}} = 2 \\&\therefore x^{\frac{1}{3}} = \frac{2}{\frac{1}{2}} \\&\therefore x^{\frac{1}{3}} = 4 \quad (1) \\&\therefore (x^{\frac{1}{3}})^3 = (4)^{\frac{3}{1}} \\&\therefore x = 64 \quad (1) \quad [x_0] \quad \checkmark\end{aligned}$$

Vraag 4:

$$\begin{aligned}4.1.1. \quad &2 \log_4 32 \\&= 2 \log_2 2^5 \quad (1) \\&= \frac{10}{2} \\&\therefore = 5 \quad (1) \quad (3)\end{aligned}$$

$$4.1.2. \quad 5 \log 2 + 2 \log 5 - \log 8$$

$$\begin{aligned}&= \log 2^5 + \log 5^2 - \log 8 \\&= \log (2^5 \times 5^2 \div 8) \\&= \log 100 \quad (1) \\&\checkmark = 2 \quad (1) \quad (5)\end{aligned}$$

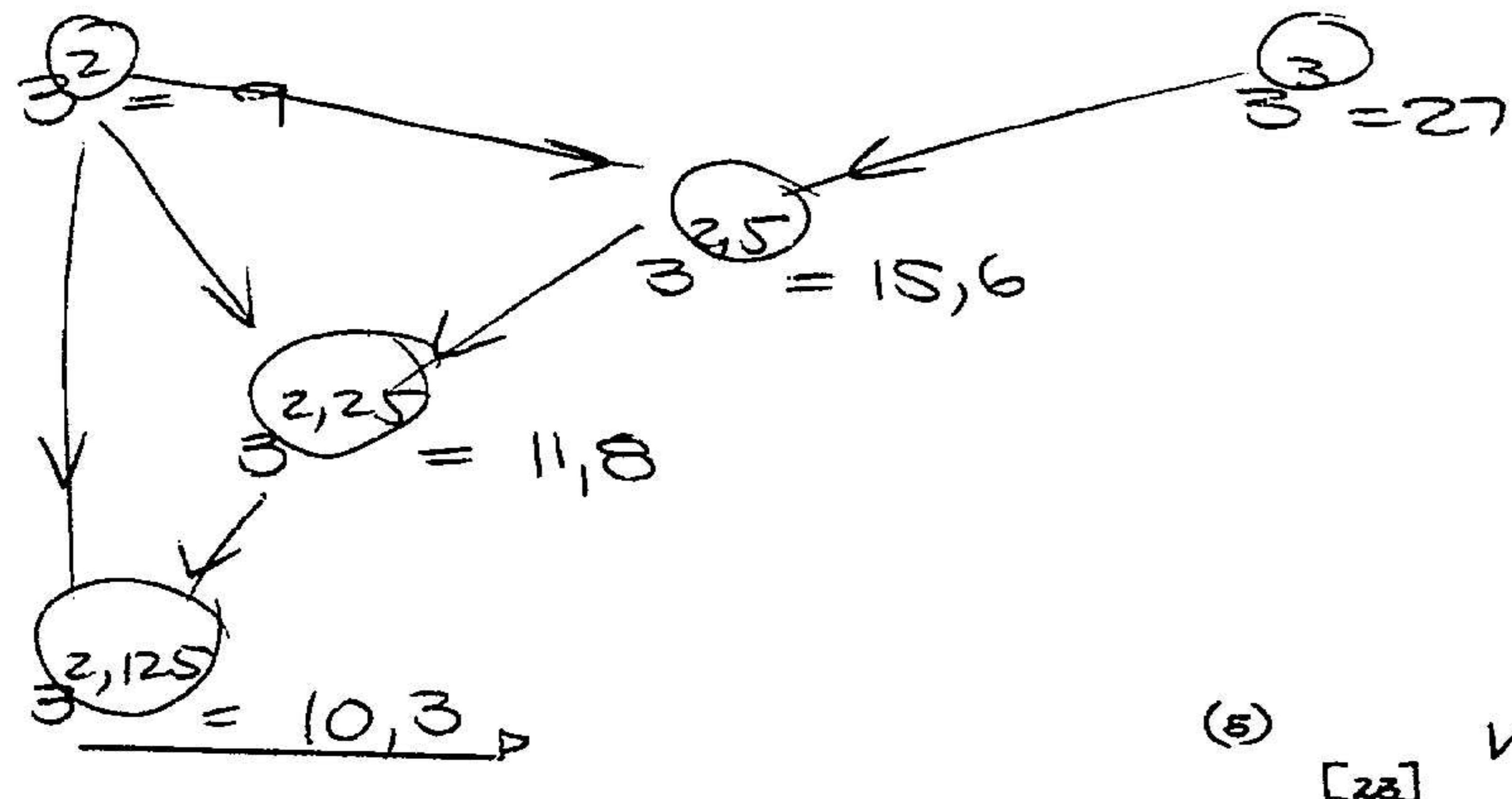
$$4.1.3. \quad \log_9 \sqrt{9} + 2 \log 1 - \log_6 36$$

$$\begin{aligned}&= \frac{\log 9^{\frac{1}{2}}}{\log 9} + 0^0 \cdot \frac{\log 6^2}{\log 6} \quad (1) \\&= \frac{1}{2} + 0 \quad (1) \quad (6)\end{aligned}$$

$$\begin{aligned}4.2.1. \quad &\log_{\log x} x-1 = 2 \\&\log x - 0 = 3 \\&\log x = 3 \\&x = 1000 \quad (2)\end{aligned}$$

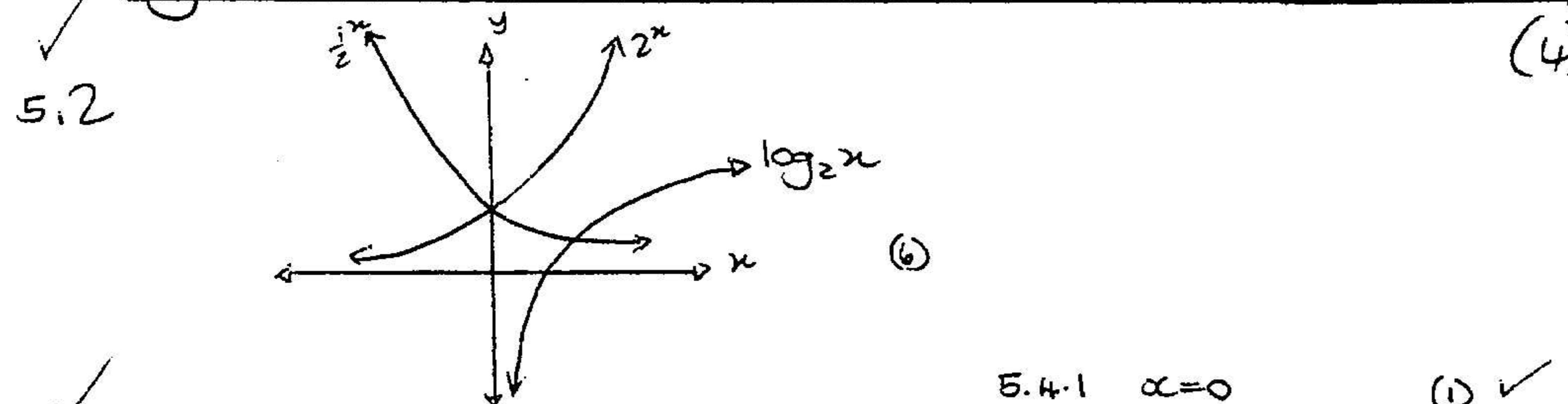
4.2.2 $3^{x+2} = 243$
 $x+2 = \frac{\log 243}{\log 3}$
 $x+2 = 5$
 $x = 3 \quad (2)$

4.3. $3^x = 10$



Vraag 5:

	-2	-1	0	1	2
$y = 2^x$	0,25	0,5	1	2	4
$y = \frac{1}{2^x}$	4	2	1	0,5	0,25



5.3 Simmetrie $\quad (2)$

- 5.4.1 $\alpha=0 \quad (1) \checkmark$
 5.4.2 $\alpha=-1 \quad (1) \checkmark$
 5.4.3 $\alpha=1 \quad (1) \checkmark$
 $\quad [15] \checkmark$

VR / Q.6
 6.1 $\lim_{x \rightarrow -2} x^2 - 3x + 2$
 $\lim_{x \rightarrow -2} (-2)^2 - 3(-2) + 2 = 12 \quad (1)$
 $\quad (2)$

6.2 $f(x) = x^2 + 3$
 $f(x+h) = (x+h)^2 + 3$
 $= x^2 + 2hx + h^2 + 3$

$$\begin{aligned} f'(x) &= \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h} \quad (1) \\ &= \lim_{h \rightarrow 0} \frac{x^2 + 2hx + h^2 + 3 - (x^2 + 3)}{h} \quad (1) \\ &= \lim_{h \rightarrow 0} \frac{x^2 + 2hx + h^2 + 3 - x^2 - 3}{h} \quad (1) \\ &= \lim_{h \rightarrow 0} \frac{h(2x + h)}{h} \quad (1) \\ &= \lim_{h \rightarrow 0} 2x + h \quad (1) \\ &= 2x \quad (1) \end{aligned}$$

6.3
 6.3.1 $g'(x) = x^2 + 8x \quad (1)$
 6.3.2 $g'(1) = 4 \cdot 1 - 1 \quad (1)$

6.4
 6.4.1 $f(x) = 3x^2 - x + 2$
 $f(1) = 3(1)^2 - 1 + 2$
 $= 4 \quad (1)$
 6.4.2 $f'(x) = 6x - 1 \quad (1)$
 $\quad (2)$

6.4.3 $f'(1) = 6(1) - 1$
 $= 5 \quad (1) \quad (1)$

6.4.4 $y - y_1 = m(x - x_1) \quad (1)$
 $y - 4 = 5(x - 1) \quad (1)$
 $y = 5x - 1 \quad (1) \quad (4)$
 $\quad [20] \checkmark$

VR / Q.7

7.1
 7.1.1 $f(t) = 80t - 5t^2$
 for max / vir maks
 $f'(t) = 0$
 $80 - 10t = 0$
 $t = 8 \text{ sec/sec} \quad (3)$

7.1.2 $f(x) = 80x - 5x^2$
 $= 640 \quad (1) 320$
 $= 320 \text{ m} \quad (1) \quad (2)$

7.1.3 $f'(t) = 80 - 10t$
 $f'(3) = 80 - 10(3) \quad (1)$
 $= 50 \text{ m/s} \quad (1)$

(2)
 \checkmark
 $[7]$

Vrog 8 | Question 8:

8. $h(x) = x^3 - 6x^2$

$x=0$ of mit ($y=0$)

$$\begin{aligned} 0 &= x^3 - 6x^2 \\ 0 &= x^2(x-6) \\ \checkmark \quad x=0 &\text{ or } x=6. \end{aligned}$$

$y=0$ of mit

$$\begin{aligned} h(0) &= 0^3 - 6(0)^2 \\ &= 0 \quad \textcircled{1} \end{aligned} \quad \textcircled{3}$$

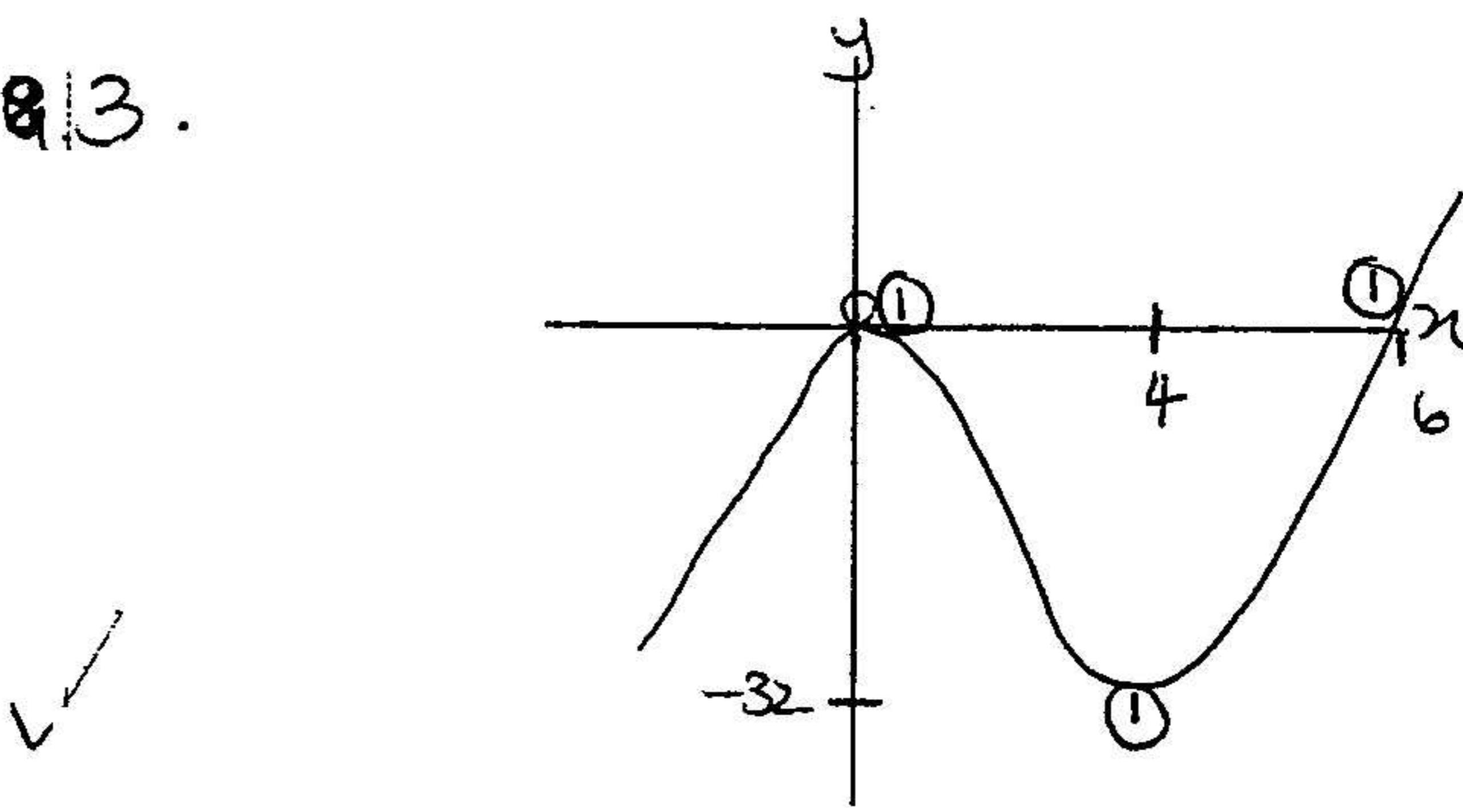
82. $h(x) = x^3 - 6x^2$
 $h'(x) = 3x^2 \textcircled{1} - 12x \textcircled{1}$

$$\begin{aligned} 0 \textcircled{1} &= 3x^2 - 12x \\ 0 &= 3x(x \textcircled{1} - 4) \\ 3x=0 &\text{ or } x-4=0 \\ x=0 \textcircled{1} &\qquad\qquad\qquad x=4 \textcircled{1} \end{aligned}$$

$$\begin{aligned} h(0) &= (0)^3 - 6(0)^2 = 0 \\ h(4) &= 4^3 - 6(4)^2 = -32 \end{aligned}$$

$\checkmark \quad \underline{(0,0)} \quad \textcircled{1} \quad \underline{(4, -32)}$ \textcircled{7}

83.



[13] ✓