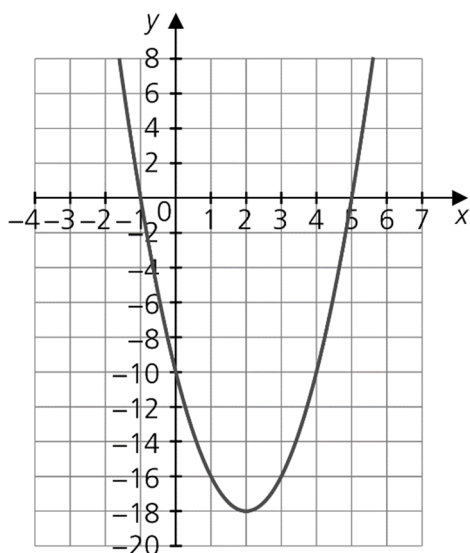


All answers were written by the authors. In examination, the way marks would be awarded to answers like these may be different.

18 Graphs of functions

Exercises 18.2–18.3

1

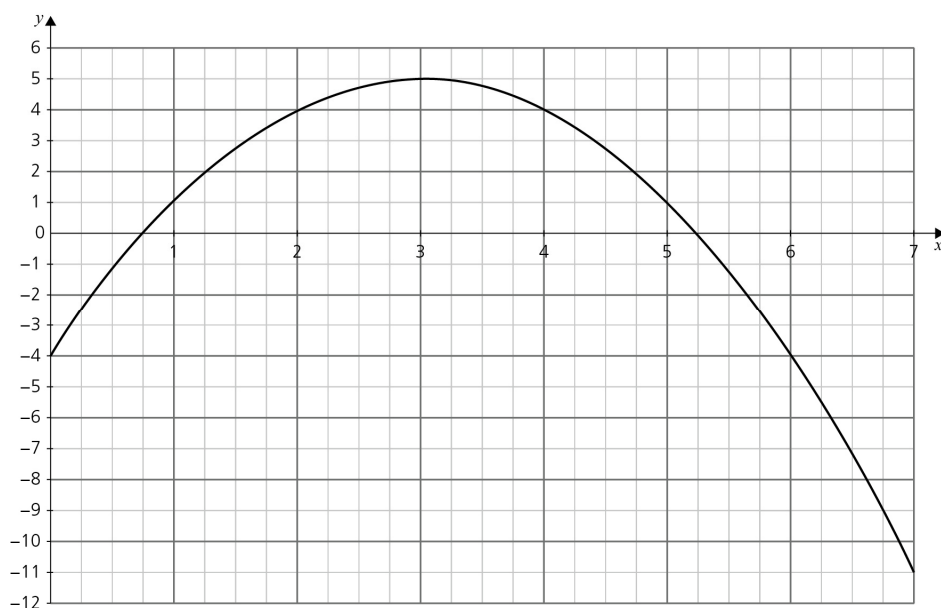


$x = -1$ and 5

2 $x = 1$ and 3

Exercise 18.4

1 a



b $(3, 5)$

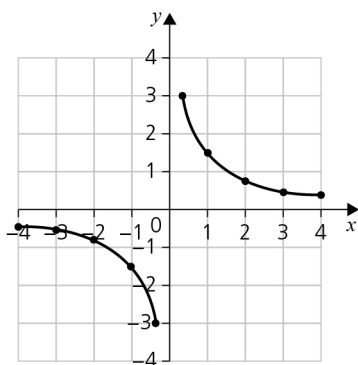
- 2 a i minimum
 ii $(6, -4)$
 b i minimum
 ii $(0, -3)$
 c i maximum
 ii $(-8, -2)$

Exercise 18.5

1 a

x	-4	-3	-2	-1	-0.5		0.5	1	2	3	4
y	-0.375	-0.5	-0.75	-1.5	-3		3	1.5	0.75	0.5	0.375

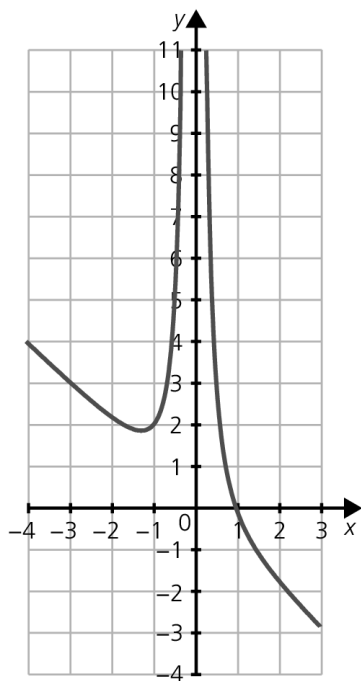
b



Exercises 18.6–18.7

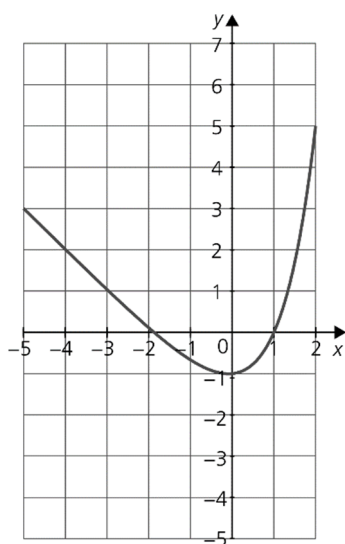
1 a

x	-4	-3	-2	-1	-0.5		0.5	1	2	3
f(x)	4.1	3.1	2.3	2	4.5		3.5	0	-1.8	-2.9

b

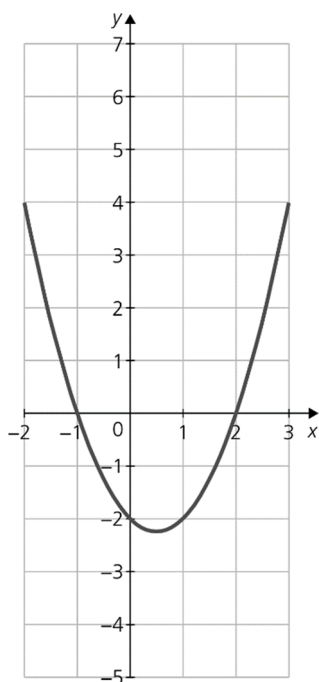
2 a

x	-5	-4	-3	-2	-1	0	1	2
f(x)	3.0	2.0	1.0	0.1	-0.7	-1	0	5

b

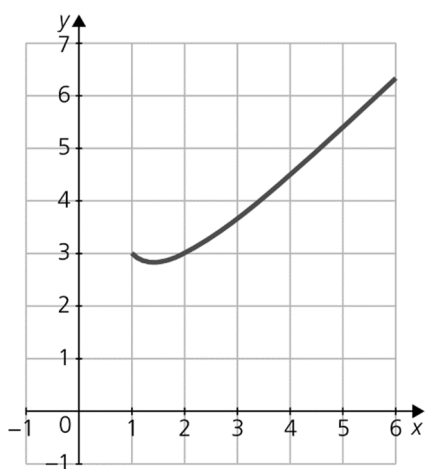
Exercise 18.8

1 a



b Gradient = 3

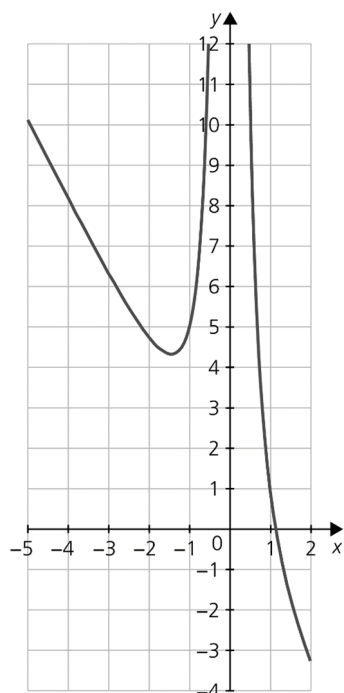
2 a



b Gradient = $\frac{1}{2}$

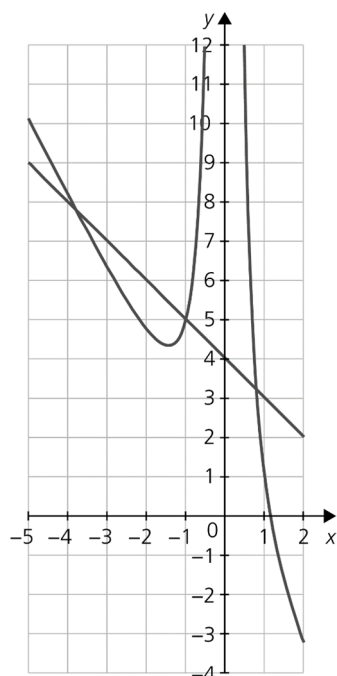
Exercise 18.9

1 a

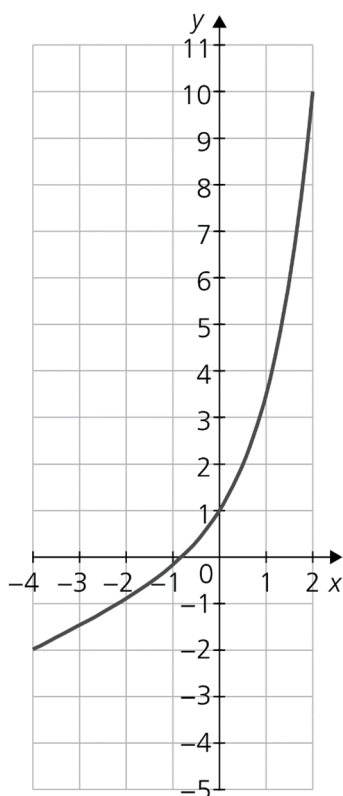


b Rearrange the equation to give $\frac{3}{x^2} - 2x = -x + 4$

Superimposing the graph of $y = -x + 4$ gives

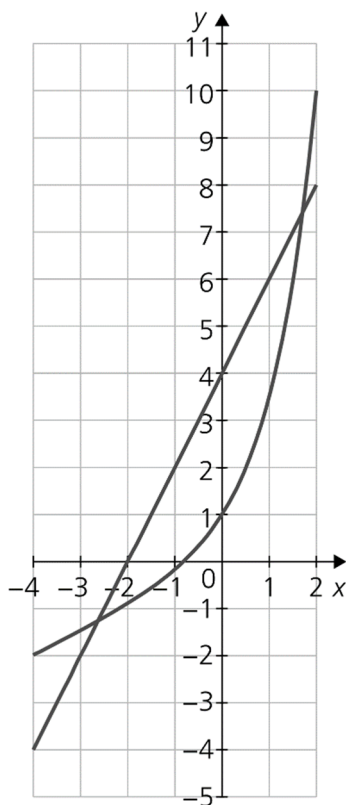


Therefore $x \approx -3.8, -1$ and 0.8

2 a

b Rearrange the equation to give $3^x + \frac{1}{2}x = 2x + 4$

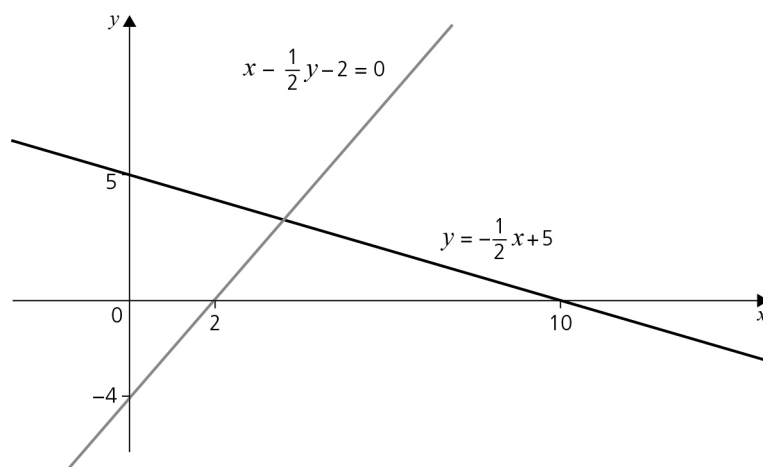
Superimposing the graph of $y = 2x + 4$ gives



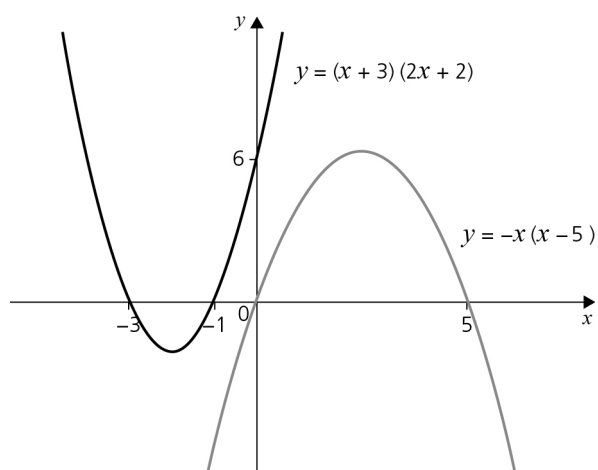
Therefore $x \approx -2.6$ and 1.7

Exercises 18.10–18.11

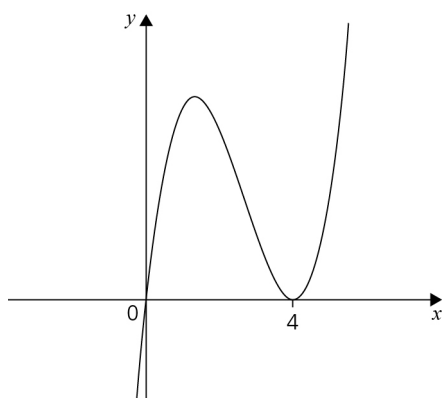
1



2 a

b i $(-2, -2)$ ii $(2\frac{1}{2}, 6\frac{1}{4})$

3



4

