

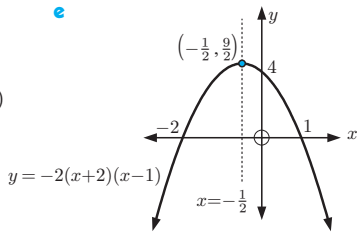
b No, as the tunnel is only 4.44 m high when it is the same width as the truck.

EXERCISE 1G

- 1 a min. -1 , when $x = 1$ b max. 8 , when $x = -1$
 c max. $8\frac{1}{3}$, when $x = \frac{1}{3}$ d min. $-1\frac{1}{8}$, when $x = -\frac{1}{4}$
 e min. $4\frac{15}{16}$, when $x = \frac{1}{8}$ f max. $6\frac{1}{8}$, when $x = \frac{7}{4}$
- 2 a 40 refrigerators b \$4000
- 4 500 m by 250 m 5 c 100 m by 112.5 m
- 6 a $41\frac{2}{3}$ m by $41\frac{2}{3}$ m b 50 m by $31\frac{1}{4}$ m
- 7 b $3\frac{1}{8}$ units 8 a $y = 6 - \frac{3}{4}x$ b 3 cm by 4 cm

REVIEW SET 1A

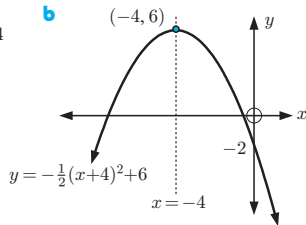
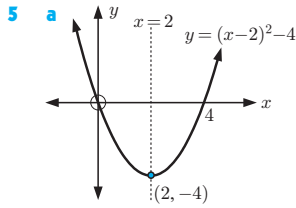
- 1 a $-2, 1$ e
 b $x = -\frac{1}{2}$
 c 4
 d $(-\frac{1}{2}, \frac{9}{2})$



- 2 a $x = 0$ or 4 b $x = -\frac{5}{3}$ or 2 c $x = 15$ or -4

- 3 a $x = \frac{-5 \pm \sqrt{13}}{2}$ b $x = \frac{-11 \pm \sqrt{145}}{6}$

- 4 $x = -\frac{7}{2} \pm \frac{\sqrt{65}}{2}$



- 6 a $y = 3x^2 - 24x + 48$ b $y = \frac{2}{5}x^2 + \frac{16}{5}x + \frac{37}{5}$

- 7 $a = -2$ which is < 0 \therefore a max.

- 8 $(4, 4)$ and $(-3, 18)$ 9 $k < -3\frac{1}{8}$

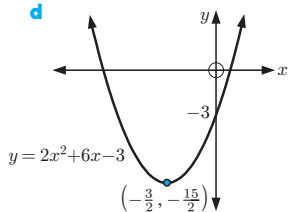
- 10 a $m = \frac{9}{8}$ b $m < \frac{9}{8}$ c $m > \frac{9}{8}$ 11 $\frac{6}{5}$ or $\frac{5}{6}$

12 **Hint:** Let the line have equation $y = mx + 10$.

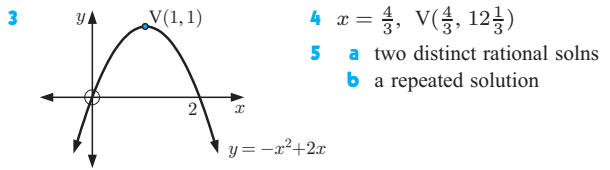
- 13 a $m = -2, n = 4$ b $k = 7$

REVIEW SET 1B

- 1 a $y = 2(x + \frac{3}{2})^2 - \frac{15}{2}$ d
 b $(-\frac{3}{2}, -\frac{15}{2})$
 c -3

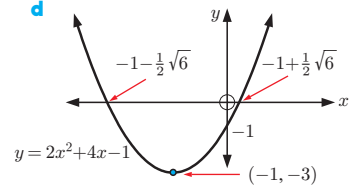


- 2 a $x \approx 0.586$ or 3.41 b $x \approx -0.186$ or 2.69



- 6 a $c > -6$ b example: $c = -2, (-1, -5)$ and $(3, 7)$

- 7 a $x = -1$
 b $(-1, -3)$
 c y -intercept -1 ,
 x -ints. $-1 \pm \frac{1}{2}\sqrt{6}$



- 8 13.5 cm by 13.5 cm

- 9 a $x = -2$ b $x \in \mathbb{R}, x \neq -2$

- 10 a min. $= 5\frac{2}{3}$ when $x = -\frac{2}{3}$
 b max. $= 5\frac{1}{8}$ when $x = -\frac{5}{4}$

- 11 b $37\frac{1}{2}$ m by $33\frac{1}{3}$ m c 1250 m²

- 12 a $k = -12$ or 12 b $(0, 4)$

REVIEW SET 1C

- 1 a $x = 2$
 b $(2, -4)$
 c -2

- 2 a $x = \frac{5}{2} \pm \frac{\sqrt{37}}{2}$
 b $x = \frac{7}{4} \pm \frac{\sqrt{73}}{4}$

- 3 a $x = \frac{7}{2} \pm \frac{\sqrt{37}}{2}$
 b no real roots

- 4 a $y = \frac{20}{9}(x-2)^2 - 20$
 b $y = -\frac{2}{7}(x-1)(x-7)$
 c $y = \frac{2}{9}(x+3)^2$

- 5 a graph cuts x -axis twice



- 6 a $a < 0, \Delta > 0$, neither
 b $a > 0, \Delta < 0$, positive definite

- 7 $y = -6(x-2)^2 + 25$ 8 $\frac{1}{2}$ 9 $k < 1$

- 10 $y = -4x^2 + 4x + 24$ 11 $m = -5$ or 19

- 12 a i $A(-m, 0), B(-n, 0)$ ii $x = \frac{-m-n}{2}$

- b i positive ii negative

- 13 a i $y = 3x^2 - 27$ ii $y = 9x - 27$ b $0 \leq x \leq 3$

EXERCISE 2A

- 1 a, d, e 2 a, b, c, e, g, i 3 No, for example $x = 1$
 4 No, for example $(0, 3)$ and $(0, -3)$ satisfy the relation.

EXERCISE 2B

- 1 a 2 b 8 c -1 d -13 e 1
 2 a 2 b 2 c -16 d -68 e $\frac{17}{4}$
 3 a -3 b 3 c 3 d -3 e $\frac{15}{2}$