J8 pps 70-86

Answers

p. 71

[1] $y = 3,\ 5,\ 7,\ 8,\ 12,\ 15$

[2] $3 \le y \le 15$

p. 72

[3] $y = 0.6\,x + 331$, where the units of the constant 0.6 are $\frac{\text{meters}}{\text{second °C}}$

[4] $2\,x$

[5] $y = 35 - 0.1\,x$, where the units of the constant 0.1 are $\frac{\text{liters}}{\text{kilometer}}$.
The amount of fuel remaining after 50 km is 30 liters.

[6] $y = 2\,x + 12$

p. 73

[1] When x increases by increments of 1, y increases by increments of 2.
When x increases by increments of 3, y increases by increments of 6.

[2] Note: there is a typo. Should read "In function (1)"
When x increases from 4 to 7, y increases from 11 to 17.

p. 74

[3.1] $\frac{\text{increase in } y}{\text{increase in } x} = \frac{9}{3} = 3$

[3.2] $\frac{\text{increase in } y}{\text{increase in } x} = \frac{12}{4} = 3$

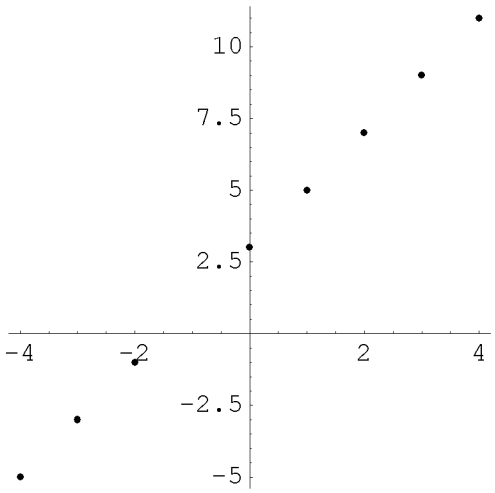
[4.1] 2

[4.2] -12. The minus sign means the value of y has decreased as x increased by 4.

[5] $y = \frac{2}{3}\,x - 4$

p. 75

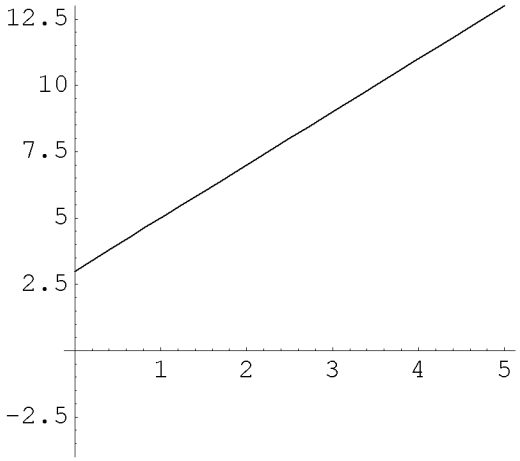
[1]



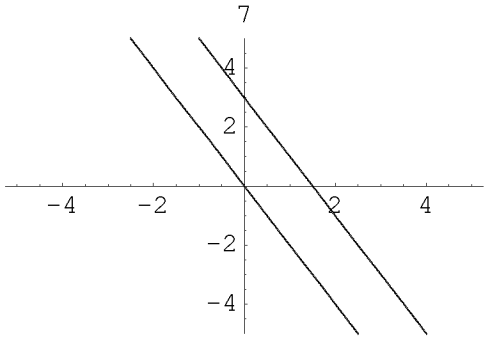
[2] A, D

p. 76

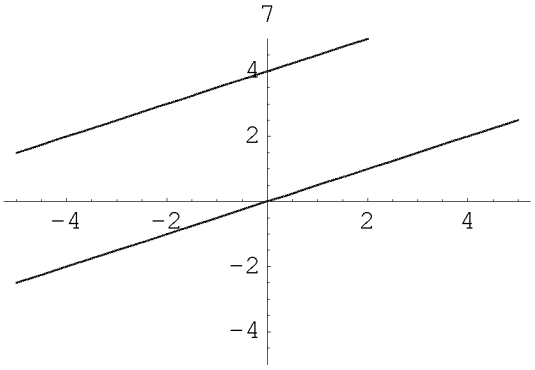
[3]



[4.1]



[4.2]



p. 77

[5] The y-intercept of $y = -2x + 3$ is 3. The y-intercept of $y = \frac{1}{2}x + 4$ is 4.

[6] 2

[7] Checked. [8] Checked.

p.78

[9.1] slope = 1, intercept = -2

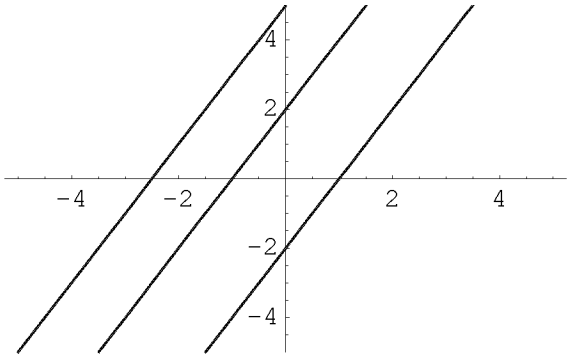
[9.2] slope = 3, intercept = -4

[9.1] slope = $\frac{3}{2}$, intercept = 6

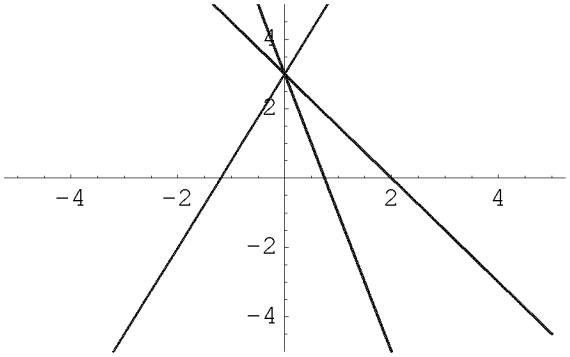
[9.1] slope = -4, intercept = $\frac{2}{3}$

p. 79

[10.1]

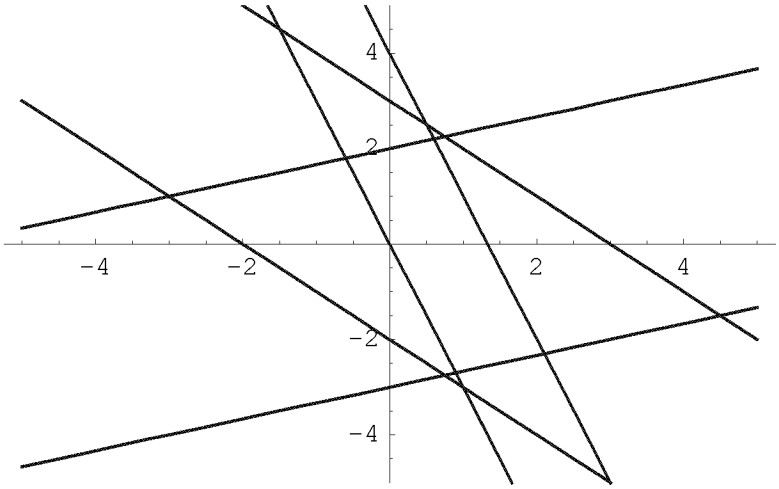


[10.2]



p. 80

[11.1] - [11.6]



line 1 is parallel to line 4
line 2 is parallel to line 3
line 3 is parallel to line 6

[12.1] $y = 3x + 3$

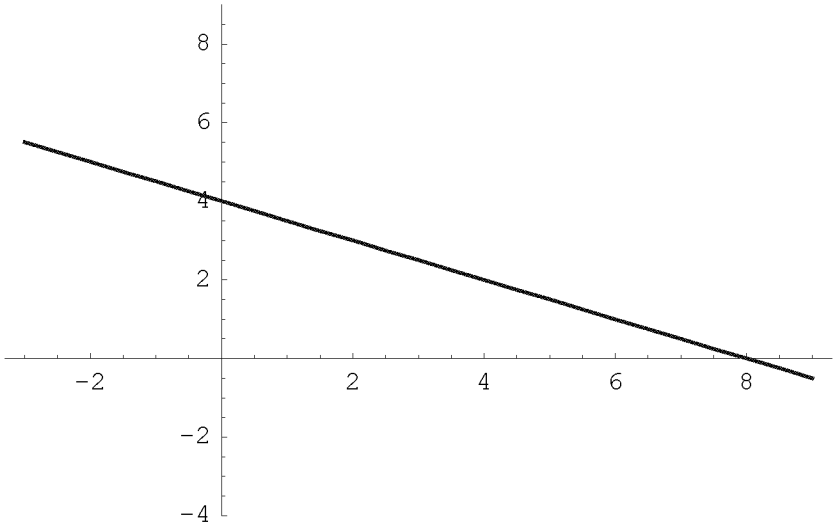
[12.2] $y = -2x + 1$

[12.3] $y = -x - 3$

[12.4] $y = x + 4$

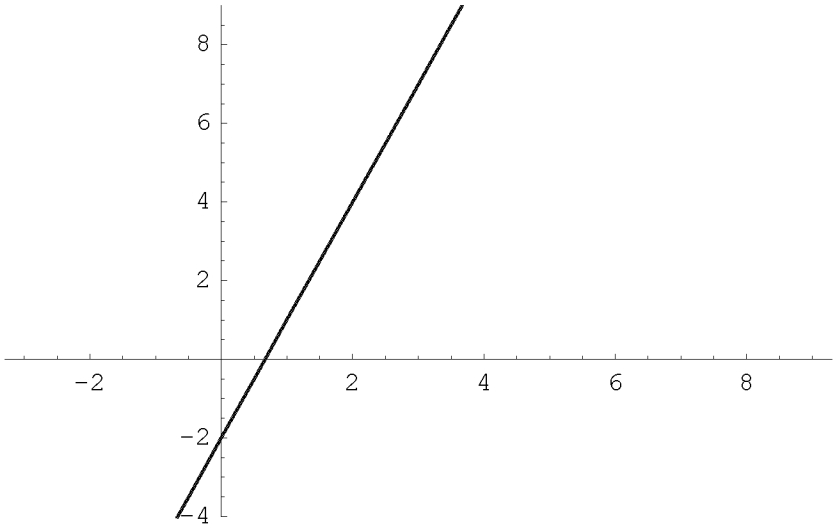
p. 81

[1]



$x = 6 \Longrightarrow y = 1$
$x \geq 6 \Longrightarrow y \leq 1$

[2]

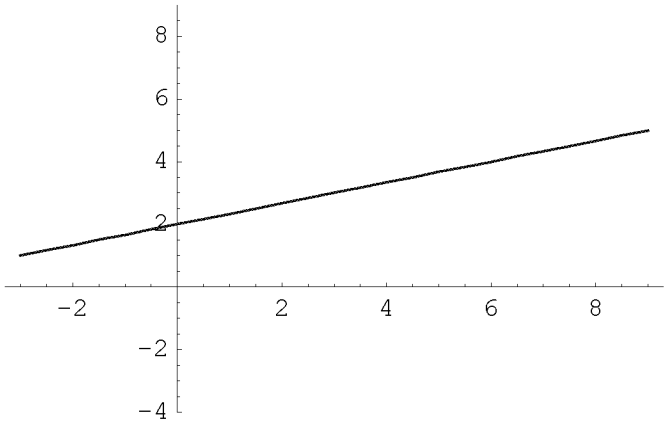


$x = 2 \Longrightarrow y = 2$
$x = 3 \Longrightarrow y = 7$
$2 < x < 3 \Longrightarrow 2 < y < 7$

p. 82

[3.1] When $y = 3,\ x = 3$

[3.2]



When $y < 3,\ x < 3$

p.83

[1.1] $y = \frac{1}{2}x - 2$

[1.2] $y = -x - 5$

[2.1] $y = -2.5x + 2$

[2.2] $y = -2x + 5$

p. 84

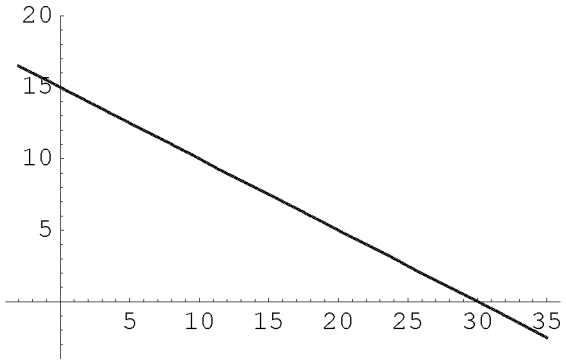
[3] $y = -3x + 3$

p.85

[4] $y = \frac{-6}{5}x + \frac{7}{5}$

[5] $y = \frac{1}{5}x + 10$

[6] $y = -\frac{1}{2}x + 15$



The candle will be completely consumed in 30 minutes.

p. 86

[7] $W = 2\,\text{kg} \Longrightarrow l = 12\,\text{cm}$, $W = 5\,\text{kg} \Longrightarrow l = 25.5\,\text{cm}$;
When $W = 2\,\text{kg}$ the computed distance is 0.1 cm greater than the table.
When $W = 4\,\text{kg}$ the computed distance is 0.1 cm less than the table.
$W = 3.5\,\text{kg} \Longrightarrow l = 18.75\,\text{cm}$, $W = 8\,\text{kg} \Longrightarrow l = 39\,\text{cm}$