

1. Evaluate the following, showing all steps. (14 marks)

(a) $3 + (-12) + (-5) - 2(-8)$

(b) $1\frac{2}{3} - \frac{5}{6}$

(c) $\left(\frac{-4}{9}\right) \div \left(-\frac{10}{27}\right)$

(d) $[(-11-5)(-2)-2] - \left[-10 - \left(\frac{9}{5}\right) \times \left(\frac{15}{9}\right)\right]$

(e) $\tan\left(\frac{\frac{2}{3} \text{ of } 30 - (35)(-2)}{10 + 16 \div (-2)}\right)^0$

2. Expand and/or simplify: (11 marks)

(a) $3x - 4y + 3x + 7y - 12x$

(b) $7p^2q - (-2pq) + (-8p^2q) - 4pq^2 + 10pq - (-7pq^2)$

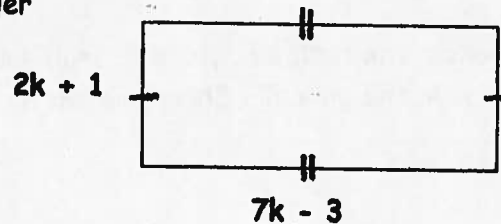
(c) $3(m^2 - 4m + 4) - (2m^2 - 5m + 12)$

(d) $(2x - 3)(4x + 1)$

(e) $3(x - 2y)^2$

3. For the rectangle on the right,

(a) find an expression that represents how much longer the length is than the width.



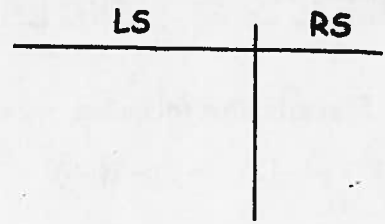
(b) find an expression that represents the area of the rectangle

(c) find the area of the rectangle if $k = 2$ cm.

5. Solve the following equations. Check the answer in (b).

(a) $2x = 6x + 60$

(b) $8(a + 2) - 6 = 3 + a$



(5)

(c) $\frac{2x}{3} - 2 = \frac{x+1}{2}$

(4)

6. Given the formula $A = \frac{h}{2}(a+b)$, find the value of "b" if $A = 20\text{cm}$, $h = 4\text{cm}$, and $a = 6\text{cm}$.

(4)

7. Write the ratios in lowest terms: (a) $15 : 10 : 5$

(b) 3km to 200m

(3)

8. Solve the following proportions for the indicated unknown(s) using cross multiplication.

(a) $\frac{x}{4} = \frac{7}{5}$

(b) $\frac{x}{24} = \frac{-1}{4} = \frac{y}{-3}$

(2)

(4)

9. (a) In a punch, the ratio of Sprite to fruit juice is $3 : 2$. If 1.5L of fruit juice is used, how much Sprite is in the punch? Show your work.

(3)

(b) Explain why $\triangle ABC$ is similar to $\triangle ADE$ and find the value of x . (5 marks)

