

S3 Credit – Homework 8

Non-calculator section:

1. (a) Evaluate $36 - 1.34 \times 20$

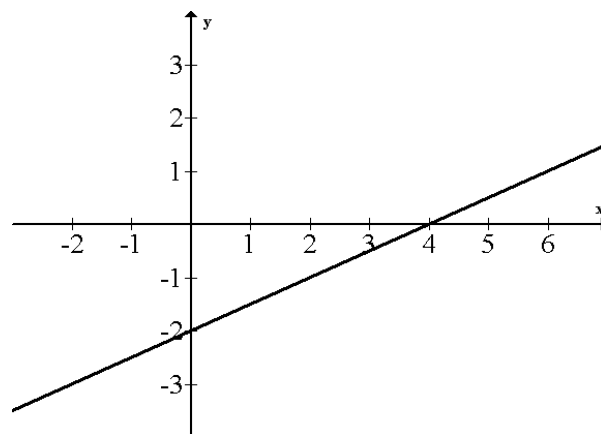
(b) $f(x) = x^2 - \frac{15}{x}$. Calculate $f(-5)$.

2. (a) Solve $2 - 3(x - 1) > 2x$

(b) Solve $3x^2 - 27 = 0$

(c) Simplify $(2x - y)(3x + y)$

3. Find the equation of the line shown opposite



4. (a) Factorise fully $2x^2 - 10x$

(b) Hence simplify $\frac{2x^2 - 10x}{2x^2 - 11x + 5}$

5. The marks of 17 pupils in a class test were

34 32 22 45 49 40 22 30 17 44 38 40 40 16 39 28 48

(a) Show this information in a boxplot.

(b) Calculate the semi-interquartile range of the marks.

6. H varies as the square of L and inversely as M.

(a) Find a formula connecting H, L and M.

(b) L is doubled and M is halved. What effect does this have on H?

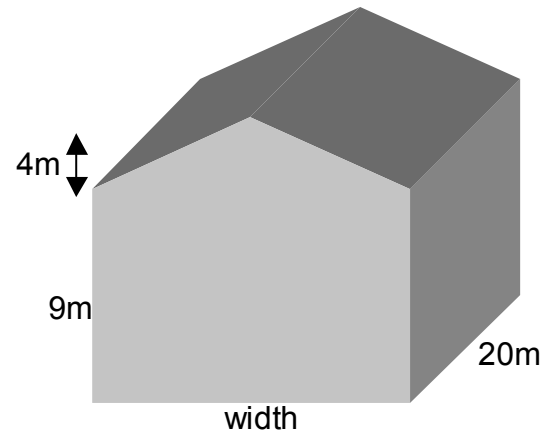
Calculator section:

7. Solve the equation $4\tan x + 9 = 1$ $0 \leq x \leq 360$

8. Niruz earns £26 500 per annum. She agrees a pay deal with her employer which will see her get a pay rise of 4.6% pa for each of the next 4 years.
What will Niruz earn in 4 years time?

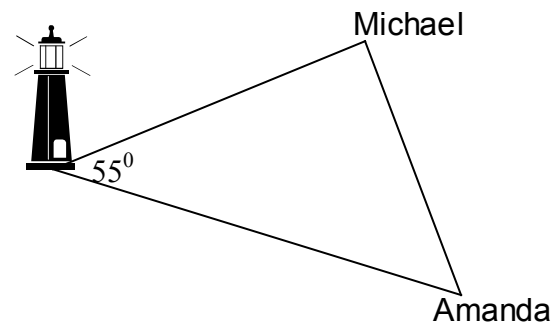
9. A factory building has volume 2640 m^3 . The cross-section of the building consists of a rectangle and a triangle.

Calculate the width of the building.



10. The diagram shows the directions walked by Amanda and Michael after they leave a lighthouse. Michael walks at a speed of 3.8 kmph and Amanda walks at a speed of 4.4 kmph.

How far apart will Amanda and Michael be after 2 hours?



11. The costs of a can of diet coke in 6 different shops are

47p 49p 50p 44p 48p 44p

- (a) Calculate the mean and standard deviation of these costs.
 (b) Each shop increases the price of a can of diet coke by 4p.
 Write down, **without working**, the mean and standard deviation of the costs now.

12. Triangle ABC has $AB = 11 \text{ cm}$, $BC = 14 \text{ cm}$ and $AC = 17 \text{ cm}$.

- (a) Calculate the size of angle BAC.
 (b) Hence find the area of the triangle.

