Int 1 Unit 3 Specimen NAB

1) Given p = q + rs, calculate p when q = 9, r = 6 and s = 5.

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2) a) Multiply out the brackets 10(n - 11)

b) Simplify the expression 10(p + 12) + 12p.

a) 10n - 110
b) 22p + 120

3) Factorise 10q + 40

10 (q + 4)

4) a) Solve the equation t - 7 = 9

b) Solve the equation 8x = 24

a) t = 16 b) x= 3

5) a) Solve the inequality r + 9 < 15

b) Solve the inequality 3t < 15

a) r < 6 b) t < 5

6) a) Complete the table below where y = 4x + 1

b) Use the table of values to draw the straight line y= 4x + 1 on a grid.

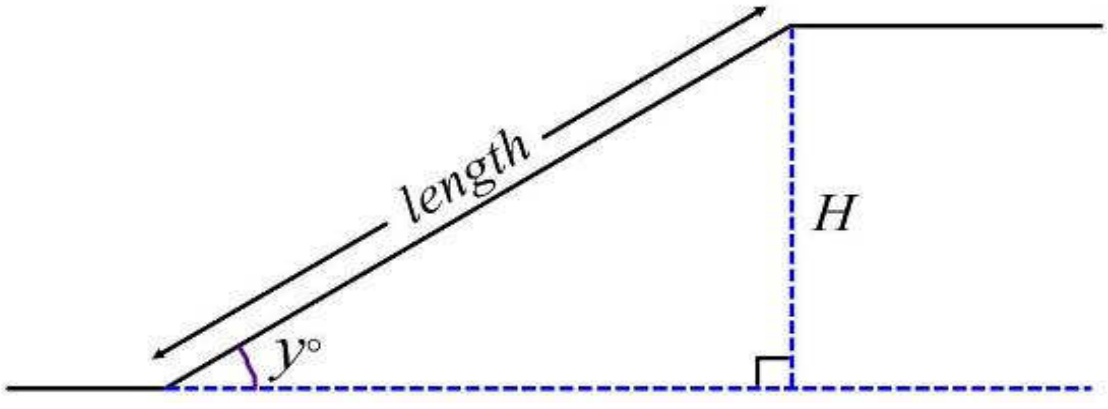
x	0	1	2	3
y				

a) 1, 5, 9 and 13

7) The diagram below shows a junior ski run.

The run's length is 270 metres long and slopes at an angle (y) of 29°.

Calculate the difference in height (H metres), between the top and the bottom of the slope.

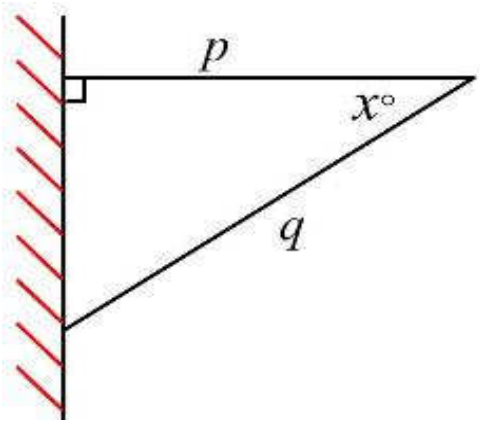


130.9 m

8) This bracket is used to support a wooden shelf.

If p = 5.4 m and q = 6.5 m

Calculate the size of the angle marked x°.



33.8

9) a) The speed of light is approximately 9.856×10^{8} feet per second. Write this number out in full.

b) The radius of an electron is 2.82×10^{-15} m. Write this number out in full.

10) a) The distance from the Sun to Uranus is 1 782 700 000 miles. Write this number in standard form.

b) The radius of an electron is 0.000 000 000 000 282 m . Write this number in standard form.

11) Large distances in space are measured in light years. One light year is 9.46×10^{12} km.

Calculate the number of kilometres in 16 light years in standard form.