Q1. Solve $3x^2 - 6x - 19 = 0$, giving your answers correct to 1 decimal place.

Q2. Sarah trades in her iPhone 4s because she decides she wants to uy a Samsung Galaxy S4.
The O2 store give Sarah £149.99 for her iPhone which is 70% less than what she paid for it.
How much did she pay for the iPhone?

Q3. A straight line passes through the points (-4, 1) and (0, -5). Find it's equation.

Q4. From the diagram below, find:
  i.   The components of the vector **a**
  ii.   The components of the vector **b**
  iii.   The magnitude of 2**a** - **b**
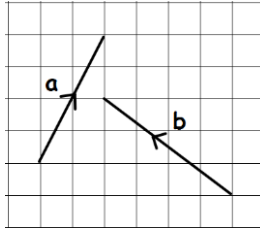
Q5. A parabola is given has roots at point A (-3, 0) and B (7, 0). Write the equation of the axis of symmetry.

Q6. A straight line has the equation $4x - 3y = 12$. Find the co-ordinates where the line cuts the x – axis.

Q7. A sphere has a volume of 268 cm³. Calculate the size of its radius, correct to the nearest cm.

Q8. Simplify:

  a. $\dfrac{5g^2 \times 3g^2}{\sqrt{g}}$

  b. $\dfrac{m^3 n^2}{5p^5} \div \dfrac{3m^2 n^5}{20p^4}$

  c. $\dfrac{k}{6+x} \times \dfrac{12x + 2x^2}{k^3}$

Q9. Calculate the volume of a cone with a diameter of 8cm and a height of 13cm. Give your answer correct to 2 significant figures.

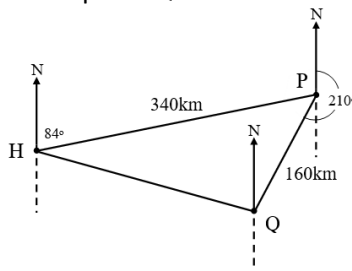Q10. Solve the following set of simultaneous equations:
  a. 4p + 3q = 1   b. 2g + 3h = 1
     8p + 5q = -1   5g = 2h - 26

Q11. A parabola has the equation $y = 6(x - 4)^2 + 8$

  i.   Find the co-ordinates of the turning point
  ii.   State the equation of the axis of symmetry.

Q12. A ship sails from harbour H on a bearing of 084° for 340km until it reaches point P. It then sails on a bearing of 210° for 160km until it reaches point Q.

  (a)   Calculate the distance between point Q and the harbour.

  (b)   On what bearing must the ship sail to return directly to the harbour from Q?