SeaHawk Tutors

Yr 11 Maths Paper 4 (40 mins)

1.

a. Express

$$\frac{3}{x} - \frac{5+x}{2x} + \frac{1}{4}$$

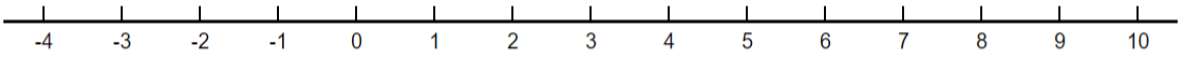
as a single fraction in its simplest form. [3]

b. Make q the subject of the equation

$$p = \frac{q-1}{q+1}$$

[3]

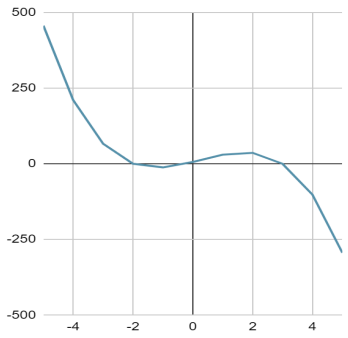
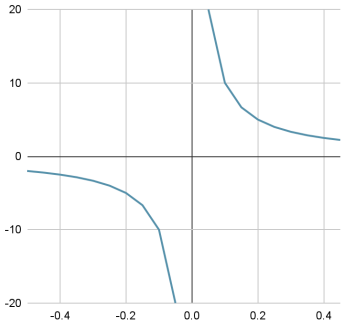
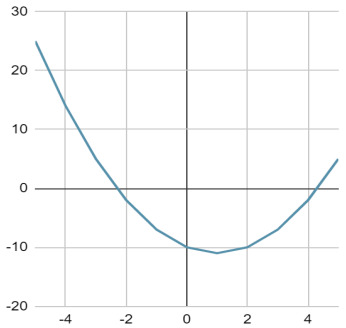
2. Solve the inequality and draw it on the number line: $2x - 4 > 5(x - 5)$



[3]

3. A curve has the equation $y = 4x^3 + \frac{1}{2}x^2$. Show that the graph of this curve has two turning points, one of which is the origin, and find the x-coordinate of the other. [4]

4. Identify the types of function in each of these graphs as Linear, Quadratic, Cubic or Reciprocal: [3]

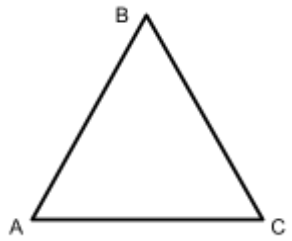
a	b	c
		

5. A long distance runner is training for a race. She runs 26 km at a constant speed of 6 kph, then speeds up for the final 15km, running at a speed of 9 kph. What is her average speed for the whole run? Give your answer to 1 dp. [4]

6. Five children on a rollercoaster have an average (mean) mass of 28kg. Two get off; the mean weight of these two is 26.5kg. What is the mean weight of the remaining children on the ride? [3]

7. Solve the simultaneous equations:
   $2x^2 + y^2 = 33$
   $2x - y = 9$
   Show clear algebraic working. [6]

8. Triangle ABC is isosceles and has dimensions as follows:
   AB = BC = x.
   AC = $2x - 2$.



The triangle has a perimeter of 16cm.
Find the area of the triangle. Give your answer to 3sf. [5]