February Daily Tasks: Days 15 - 21

15a. Evaluate

$$2\frac{3}{8} \div \frac{5}{16}$$

15b. Evaluate

$$1\frac{4}{5} + \frac{2}{5} \times \frac{3}{8}$$

16. Multiply out the brackets and simplify

$$(2x + 3)(x^2 - 4x + 8)$$

17. Two functions, f and g, have equations $f(x) = 2x + 11$ and $g(x) = x^2 - 6x + 2$
A third function, $h(x)$, exists such that $h(x) = g(x) - f(x)$.

a) Show that $h(x) = x^2 - 8x - 9$.

b) Hence, solve $h(x) = 0$

18a. Solve the equation

$$2x^2 + 5x - 2 = 0$$

Give your answer correct to one decimal place.

18b. Express $\frac{4}{\sqrt{6}}$ with a rational denominator in its simplest form.

19a. Multiply out the brackets and simplify

$$x^{\frac{1}{2}}\left(x^{\frac{3}{2}} + 2x^{-\frac{1}{2}}\right)$$

19b. Find the value of the expression when $x = -4$.

20. A parabola has equation $y = x^2 - 8x + 19$

a) Write the equation in the form $y = (x - p)^2 + q$

b) Sketch the graph of $y = x^2 - 8x + 19$, showing the coordinates of the turning point and the point of intersection with the y-axis.

21. A line passes through the points P$(a,4)$ and Q$(6, a)$.
If the gradient of PQ is -3, find the value of a.