N5 Home Exercise 1B

1) $6\frac{3}{4} - 5\frac{1}{3} \times \frac{7}{8}$

$= 6\frac{3}{4} - \left(\frac{16}{3} \times \frac{7}{8}\right)$

$= \frac{27}{4} - \frac{14}{3}$

$= \frac{27 \times 3}{4 \times 3} - \frac{14 \times 4}{3 \times 4}$

$= \frac{81}{12} - \frac{56}{12}$

$= \boxed{\frac{25}{12} \left(= 2\frac{1}{12}\right)}$

2) $a = 3, b = -4, c = -1$

$b^2 + 2ac = (-4)^2 + 2(3)(-1)$

$= 16 - 6$

$= \boxed{10}$

3) (a) $DE^2 = 3 \cdot 4^2 - 1 \cdot 6^2$

$\therefore DE^2 = 11 \cdot 56 - 2 \cdot 56$

$\Rightarrow DE^2 = 9$

$\Rightarrow \boxed{DE = 3 \text{ cm}}$

(b) $DE^2 = 3^2 \Rightarrow DE^2 = 9$

$DF^2 = 1.8^2 \Rightarrow DF^2 = 3.24$

$FE^2 = 2.4^2 \Rightarrow FE^2 = 5.76$

$DF^2 + FE^2 = 3.24 + 5.76$

$\Rightarrow DF^2 + FE^2 = 9$

As $DE^2 = DF^2 + FE^2$, $\triangle DFE$ is right-angled (by the Converse of Pythagoras' Thm)

4) $T = D \div S$

$\therefore T = 1140 \div 950 \Rightarrow T = 1.2\ h = 1h\ 12 min.$

$1355 + 1h\ 12\ min. = 1507$

No, mission is a failure, as target zone is reached 2 mins. after required time.

5) $(2x + 3)^2 = (4x - 3)(x + 3)$

$\therefore 4x^2 + 12x + 9 = 4x^2 - 3x + 12x - 9$

$\Rightarrow 12x + 9 = 9x - 9$

$\Rightarrow 3x = -18$

$\Rightarrow x = -6$