Question 1

(a)
$$[z =] \pm \left(\frac{150 - 162}{7.5} \right)$$ — M1

$$[z =] -1.6$$ — A1

$$[P(F > 150) = P(Z > -1.6) =] = 0.9452(0071\ldots)$$ — **awrt 0.945** — A1 (3)

(b)
$z = \pm 0.2533$ (or better seen) — B1

$$(\pm)\frac{s - 162}{7.5} = 0.2533\,(47\ldots)$$ — M1

$$s = 163.9$$ — **awrt 164** — A1 (3)

(c)
$z = \pm 1.2816$ (or better seen) — B1

$$\frac{162 - \mu}{9} = -1.2815515\ldots$$ — M1 / A1

$$\mu = 173.533\ldots$$ — **awrt 174** — A1 (4)

[10]

[Check mark scheme for answers , methods will be different with new specifications]

Question 2

(a)
$$\frac{127 - 100}{15}$$ — M1

So $P(L > 127) = P(Z > 1.8)$ or $1 - P(Z < 1.8)$ o.e. — A1

$$= 1 - 0.9641 = \underline{\mathbf{0.0359}}$$ (awrt **0.0359**) — A1 (3)

(b)
$$\frac{d - 100}{15} = -1.2816$$ (Calculator gives $-1.2815515\ldots$) — M1, B1

$$d = 80.776$$ (awrt **80.8**) — A1 (3)

(c) Require $P(L > 133 \mid L > 127)$ — M1

$$= \left[\frac{P(L > 133)}{P(L > 127)} \right] = \frac{P(Z > 2.2)}{P(L > 127)}$$ — dM1

$$= \left[\frac{1 - 0.9861}{1 - 0.9641} \right] = \frac{0.0139}{[0.0359]}$$ — A1

$$= 0.3871\ldots = \text{awrt } \underline{\mathbf{0.39}}$$ — A1 (4)