		A correct contextual conclusion compatible with their values, which has the words **product** and **age**. Contradictory statements score A0. Condone 'relationship' or 'connection' here but do not allow correlation. Ignore their hypotheses

Question Number	Scheme	Marks
6(a)	$D = F - M$	M1
	$D \sim \text{N}(5,\ 23)$	A1A1
	$\left[\text{P}(D > 2)\right] = \text{P}\left(Z > \frac{2 - '5'}{\sqrt{'23'}}\right)\left[= 1 - \text{P}(Z < -0.6255..)\right]$ or $\left[\text{P}(D < -2)\right] = \text{P}\left(Z > \frac{-2 + '5'}{\sqrt{'23'}}\right)\left[= 1 - \text{P}(Z < -0.6255..)\right]$	M1
	$= 0.7357$ **awrt 0.736**	A1
		(5)
(b)	$X = M_1 - M_2$	M1
	$X \sim \text{N}(0,\ 18)$	A1A1
	$\left[\text{P}(X > 1)\right] = \text{P}\left(Z > \frac{1 - '0'}{\sqrt{'18'}}\right)\left[= \text{P}(Z > 0.2357...)\right]$ $\left(\text{or } \left[\text{P}(X < -1)\right] = \text{P}\left(Z < \frac{-1 - '0'}{\sqrt{'18'}}\right)\right)$	dM1
	$\text{P}(\lvert X \rvert > 1) = 2 \times \text{P}(X > 1) = 2 \times '0.4052'$	M1
	$= 0.8104$ **awrt 0.810**	A1
		(6)
(c)	$T = F_1 + F_2 - 2M_1$	M1
	$T \sim \text{N}(\pm 10,\ 64)$	A1A1
	$\text{P}(T > 0) = \text{P}\left(Z > \frac{0 - '10'}{\sqrt{'64'}}\right)\ \left[= \text{P}(Z > -1.25)\right]$	dM1
	$= 0.8944$ **awrt 0.894**	A1
		(5)
	Notes	**Total 16**

Parts a), b) and c)

If they have not written down the **correct** model ($D \sim \text{N}(5,\ 23)$, $X \sim \text{N}(0,\ 18)$ or $T \sim \text{N}(\pm 10,\ 64)$) but you see the **correct** values (simplified or un-simplified) for the E(X) and Var (X) in their standardisation, then award first 4 marks (In b) award the M for seeing 2 x) and then the final A mark for a correct answer.

(a)	**M1**	States or uses a correct model $D = F - M$ or $D = M - F$. May be implied by a correct E(D) of 5 or -5. Condone the use of different letters.
	A1	Correct E(D) = 5 or 29-24 If they use $M - F$ you should see E(D)= –5 or 24-29
	A1	Correct Var(D) =23 or 9 +14
	M1	Attempts standardising ($\pm$), with their mean and variance. (Implied by $\pm$ awrt 0.626)
	A1	awrt 0.736 or 0.734 (calc: 0.73419…)
(b)	**M1**	States or uses a correct model. $X = M_1 - M_2$ or $X = M_2 - M_1$ Implied by E(X) = 0. Condone the use of different letters.
	A1	Correct E(X) =0 or 24-24
	A1	Correct Var(X) = 18 or 9 + 9
	dM1	**Dependent on 1st M1** for standardising ($\pm$) with their mean and variance (Implied by $\pm$ awrt 0.236). Condone a missing 0 in their standardisation.

	M1	For 2 x seen or implied (calc: 0.4068….)
	A1	awrt 0.810 or 0.814 (calc: 0.81366…)
(c)	**M1**	States or uses a correct model $T = F_1 + F_2 - 2M_1$ or $T = 2M_1 - F_1 - F_2$ Implied a correct Var(T). Condone the use of different letters and missing subscripts
	A1	Correct E(T) of 10 (29+29-2 x 24) or -10 (2 x 24 – 29 – 29)
	A1	Correct Var(T) = 64 or 14 + 14 + 2^2 x 9
	dM1	**Dependent on 1st M1** for standardising ($\pm$) with their mean and variance (Implied by $\pm$ 1.25). Condone a missing 0 in their standardisation.
	A1	awrt 0.894 (calc: 0.89435…)