Question	Scheme	Marks	AOs
5(a)	e.g. Polygon for *B* shows less dispersion (oe)	B1	2.4
		(1)	
(b)	$780\times0.05-640\times0.05$ (oe)	M1	3.4
	$=7$	A1	1.1b
		(2)	
(c)	$\sqrt{\frac{3371.1975}{100}-\overline{x}^2}=0.0483632$ (o.e.)	M1	3.1a
	$\overline{x}=5.806$ awrt 5.81	A1	1.1b
		(2)	
(d)	$\left[\mathrm{P}(D<5.75)=\right]$ 0.105649... awrt 0.106	B1	1.1b
		(1)	
(e)	$\left[\mathrm{P}(D>5.85\middle\vert D>5.75)=\right]$ $\frac{\mathrm{P}(D>5.85)}{\mathrm{P}(D>5.75)}$	M1	3.1b
	$\frac{0.20232...}{1-"0.106"}$ $(=0.22622\ldots)$	M1	1.1b
	Number machined down $=40\times"0.226..."$ $[=9.049...]$	dM1	1.1b
	so expect 9 machined down	A1	2.2a
		(4)	
			(10 marks)

Notes:

(a)	**B1:** equivalent conclusion related to dispersion. Accept polygon for *B* is higher for the range of suitable diameters.
(b)	**M1:** using frequency density, correctly for either polygon, **and** attempt difference **A1:** cao
(c)	**M1:** correct use of standard deviation or variance **A1:** cao
(d)	**B1:** correct probability using calculator
(e)	**M1:** attempt correct ratio of probabilities **M1:** correct expression with numerator awrt 0.202 < denominator (1 – their (d)), implied by answer 9.05 or better (calculator gives 9.04917…) **dM1:** dep on 2nd M1 for 40 × their 0.226 (implied by answer 9.05 or better) **A1:** cao