

- [illegible]



### Solutions

1ai.

Let X be the random variable the number of customers asking for water. $X \sim B(10, 0.6)$	<b>M1</b>
$P(X = 6) = (0.6)^6 (0.4)^4 \frac{10!}{6!4!}$	<b>M1</b>
$= 0.2508\dots$	<b>M1</b>

1aii.

$X \sim B(10, 0.6)$ $P(X < 9) = 1 - P(X = 10) + P(X = 9)$ $= 1 - (0.6)^{10} - (0.6)^9(0.4)^1 \frac{10!}{9!1!}$	<b>M1</b>
$= 0.9536$	<b>M1</b>

2a.

$P(X < 5) = 0.8424$	<b>M1</b>
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2b.

$P(X \geq 7) = 1 - P(X \leq 6)$ $= 1 - 0.9857$	<b>M1</b>
$= 0.0143$	<b>M1</b>

