

(c) Given that $P(Y < 160) = 0.99$ and $P(Y > 152) = 0.90$ find the value of μ and the value of σ . (6)

Solutions

1a.

$P(X > 168) = P(Z > \frac{168-160}{5})$	M1
$= P(Z > 1.6)$	M1
$= 0.0548$	

1b.

$P(X < w) = P(Z < \frac{w-160}{5})$	M1
$\frac{w-160}{5} = -2.3263$	M1
$w = 148.37$	M1

1c.

$\frac{160-\mu}{\sigma} =$	M1
$\frac{160-\mu}{\sigma} = 2.3263$	M1
$160 - \mu = 2.3263\sigma$	
$\frac{152-\mu}{\sigma} = -1.2816$	M1
$152 - \mu = -1.281\sigma$	
Solving simultaneously	M1
$\sigma = 2.21... = 2.22$	M1
$\mu = 154.84.... = 155$	M1

