Statistics 1   Solution Bank   ⓟ Pearson

Exercise 7B

1 a $P(Z > 1.27) = 1 - P(Z < 1.27)$
$= 1 - 0.8980$
$= 0.102$

 b $P(Z > -1.66) = P(Z < 1.66)$
$= 0.9515$

 c $P(Z < -2.28) = P(Z > 2.28)$
$= 1 - P(Z < 2.28)$
$= 1 - 0.9887$
$= 0.0113$

 d $P(0 < Z < 1.31) = P(Z < 1.31) - P(Z < 0)$
$= 0.9049 - 0.5$
$= 0.4049$

 e $P(1.30 < Z < 1.89) = P(Z < 1.89) - P(Z < 1.30)$
$= 0.9706 - 0.9032$
$= 0.0674$

 f $P(-2.8 < Z < -1.6) = P(Z < 2.8) - P(Z < 1.6)$
$= 0.9974 - 0.9452$
$= 0.0522$

2 Use the Normal CD function on your calculator, with $\mu = 0$, $\sigma = 1$ and a small value for the lower limit, e.g. -10.

 a $P(Z < 2.12) = 0.98299... = 0.9830$ (4 d.p.)

 b $P(Z < 1.36) = 0.91308... = 0.9131$ (4 d.p.)

 c
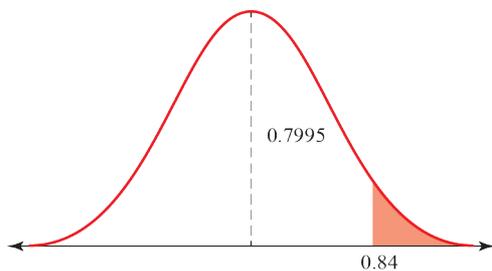
P(Z > 0.84)
$= 1 - P(Z < 0.84)$
$= 1 - 0.79954...$
$= 0.20045... = 0.2005$ (4 d.p.)

 d $P(Z < -0.38) = 0.35197... = 0.3520$ (4 d.p.)

2 e
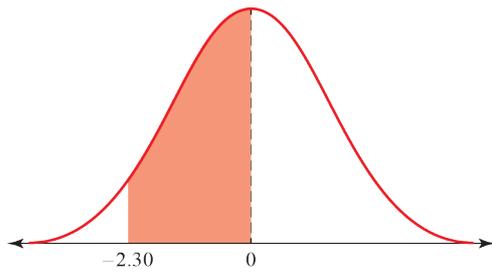
$P(-2.30 < Z < 0)$

$= 0.5 - P(Z < -2.30)$

$= 0.5 - 0.1072...$

$= 0.48929... = 0.4893$ (4 d.p.)

f $P(Z < -1.63) = 0.05155... = 0.0516$ (4 d.p.)

g
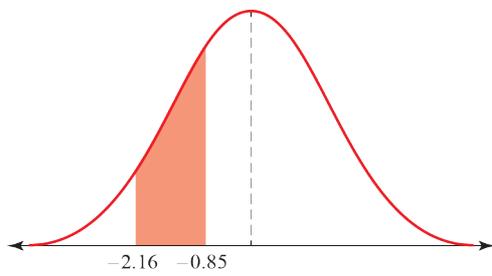
$P(-2.16 < Z < -0.85)$

$= P(Z < -0.85) - P(Z < -2.16)$

$= 0.19766... - 0.01538...$

$= 0.18227... = 0.1823$ (4 d.p.)

h
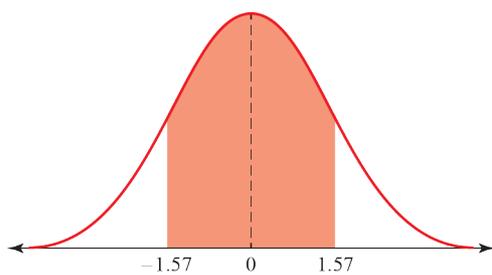
$P(-1.57 < Z < 1.57)$

$= 2 \times (0.5 - P(Z < -1.57)$

$= 2 \times (0.5 - 0.05820...)$

$= 2 \times 0.44179...$

$= 0.88358... = 0.8836$ (4 d.p.)