

$1) b) N(40, 5) \quad \mu = 40 \quad \sigma = 5 \quad * P(X \geq 40)$
 $Z = \frac{X - \mu}{\sigma} = \frac{40 - 40}{5} = 0$
 $P(Z \geq 0) = 1 - P(Z \leq 0) = 1 - 0,5 = 0,5$

$c) N(50, 20) \quad \mu = 50 \quad \sigma = 20 \quad * P(X \geq 45)$
 $Z = \frac{X - \mu}{\sigma} = \frac{45 - 50}{20} = -0,25$
 $P(Z \geq -0,25) = P(Z \leq 0,25) = 0,5985$

$c) N(2, 0) \quad \mu = 2 \quad \sigma = 10 \quad * P(X \leq 0)$
 $Z = \frac{X - \mu}{\sigma} = \frac{0 - 2}{10} = -0,2$
 $P(Z \leq -0,2) = 0,4207$

$* N(50, 20) \quad \mu = 50 \quad \sigma = 20 \quad * P(X \leq 0)$
 $Z = \frac{X - \mu}{\sigma} = \frac{0 - 50}{20} = -2,5$
 $P(Z \leq -2,5) = 0,0062$

$d) N(100, 5) \quad \mu = 100 \quad \sigma = 5 \quad * P(X \geq 110)$
 $Z = \frac{X - \mu}{\sigma} = \frac{110 - 100}{5} = 2$
 $P(Z \geq 2) = 1 - P(Z \leq 2) = 1 - 0,9772 = 0,0228$

$* N(100, 5) \quad \mu = 100 \quad \sigma = 5 \quad * P(X \geq 110)$
 $Z = \frac{X - \mu}{\sigma} = \frac{110 - 100}{5} = 2$
 $P(Z \geq 2) = 1 - P(Z \leq 2) = 1 - 0,9772 = 0,0228$

$e) N(500, 1000) \quad \mu = 500 \quad \sigma = 1000 \quad X = 400 \quad Y = 6000$
 $Z = \frac{X - \mu}{\sigma} = \frac{400 - 500}{1000} = -0,1$
 $\Rightarrow Z = -0,1 \Rightarrow P(Z \leq -0,1) = 0,4602$
 $Z = \frac{X - \mu}{\sigma} = \frac{6000 - 500}{1000} = 5,5$
 $\Rightarrow Z = 5,5 \Rightarrow P(Z \leq 5,5) = 1$
 $1 - 0,4602 = 0,5398$

$N(2000, 1000) \quad \mu = 2000 \quad \sigma = 1000 \quad X = 4000 \quad Y = 6000$
 $Z = \frac{X - \mu}{\sigma} = \frac{4000 - 2000}{1000} = 2$
 $\Rightarrow P(Z \leq 2) = 0,9772$
 $Z = \frac{X - \mu}{\sigma} = \frac{6000 - 2000}{1000} = 4$
 $\Rightarrow P(Z \leq 4) = 0,9999$
 $1 - 0,9772 = 0,0228$
 $1 - 0,9999 = 0,0001$

$4) X = 48; Y = 72 \quad \mu = 60 \quad \sigma = 12 \quad P(48 \leq X \leq 72)$
 $Z = \frac{X - \mu}{\sigma} = \frac{48 - 60}{12} = -1,0 \Rightarrow P(Z \leq -1,0) = 0,2420$
 $Z = \frac{X - \mu}{\sigma} = \frac{72 - 60}{12} = 1,0 \Rightarrow P(Z \leq 1,0) = 0,7420$
 $A = 0,2420 + 0,7420 = 0,9840$

$X = 60 \quad X = 84 \quad \mu = 60 \quad \sigma = 12 \quad P(60 \leq X \leq 84)$
 $Z = \frac{X - \mu}{\sigma} = \frac{60 - 60}{12} = 0,0 \Rightarrow P(Z \leq 0,0) = 0,5000$
 $Z = \frac{X - \mu}{\sigma} = \frac{84 - 60}{12} = 2,0 \Rightarrow P(Z \leq 2,0) = 0,9772$
 $A = 0,5000 + 0,9772 = 0,4772$

$d) N(200, 40) \quad \mu = 200 \quad \sigma = 40 \quad * P(X \geq 225)$
 $Z = \frac{X - \mu}{\sigma} = \frac{225 - 200}{40} = 0,625$
 $P(Z \geq 0,625) = 1 - P(Z \leq 0,625) = 1 - 0,7344 = 0,2656$

$* P(X \leq 190)$
 $Z = \frac{X - \mu}{\sigma} = \frac{190 - 200}{40} = -0,25$
 $P(Z \leq -0,25) = 1 - P(Z \leq 0,25) = 1 - 0,5987 = 0,4013$

$5) a) N(50, 10) \quad \mu = 50 \quad \sigma = 10 \quad * P(X \leq 60)$
 $Z = \frac{X - \mu}{\sigma} = \frac{60 - 50}{10} = 1$
 $P(Z \leq 1) = 0,2420$

$N(500, 100) \quad \mu = 500 \quad \sigma = 100 \quad * P(X \geq 40)$
 $Z = \frac{X - \mu}{\sigma} = \frac{40 - 500}{100} = -4,6$
 $P(Z \geq -4,6) = P(Z \leq 4,6) = 1$