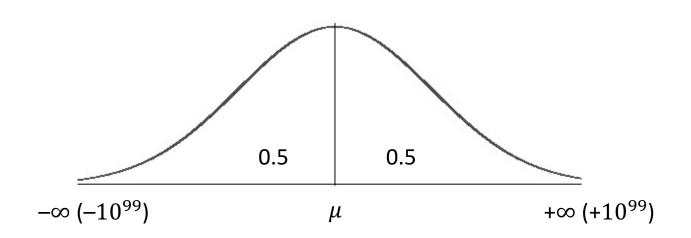


#### Normal distribution



Symmetric bell shape Mean is in the middle All x values are real numbers From  $-\infty$  to  $+\infty$ Area below curve = Probability Total probability = 1 Probability of each side = 0.5

#### **GDC Skills**



# <u>Casio</u> Find probability MENU → STAT → F5 STAT → F3 DIST → F1 NORM → F2 Ncd

#### Find X or Z value

 $\mathsf{MENU} \rightarrow \mathsf{STAT} \rightarrow \mathsf{F5} \ \mathsf{STAT} \rightarrow \mathsf{F3} \ \mathsf{DIST} \rightarrow \mathsf{F1} \ \mathsf{NORM} \rightarrow \mathsf{F3} \ \mathsf{InvN}$ 

<u>TI-84</u> Find probability  $2^{nd} \rightarrow vars \rightarrow 2$ : normalcdf(

Find X or Z value  $2^{nd} \rightarrow vars \rightarrow 3$ : invNorm

# <u>TI-nspire</u> Find probability Menu $\rightarrow$ 5: Probability $\rightarrow$ 5: Distributions $\rightarrow$ 2: Normal Cdf $\rightarrow$

### Find X or Z value

Menu  $\rightarrow$  5: Probability  $\rightarrow$  5: Distributions  $\rightarrow$  3: Inverse Normal (The area is counted from the most left hand side to the x value.)



## Find probability

1. The wrist measurements of 20 students are normally distributed with a mean of 12 cm and a standard deviation of 0.8 cm.

(a) Find the probability of students with wrist measurements smaller than 11 cm.

(b) Find the probability of students with wrist measurements greater than 13 cm.

(c) Find the probability of students with wrist measurements between 10.4 and 14.2 cm.



### Find X value

1.  $\mu = 122, \sigma = 2.1$ 

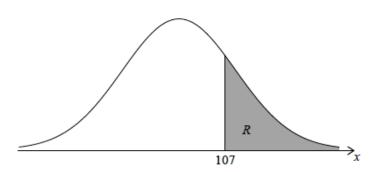
Given that P(X < a) = 0.732, find the value of a.

2.  $\mu = 53.2, \sigma = 5.2$ 

Given that P(X < a) = 0.432, find the value of a.

## Exercise Paper 1

1. The random variable X is normally distributed with a mean of 100. The following diagram shows the normal curve for X.



Let R be the shaded region under the curve, to the right of 107. The area of R is 0.24.

- (a) Write down P(X > 107).
- (b) Find P(100 < X < 107)
- (c) Find P(93 < X < 107)

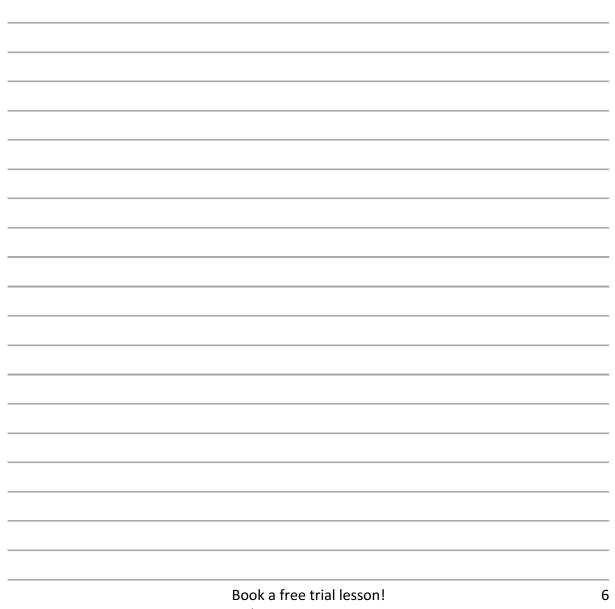


# Exercise Paper 2



1. In a large city, the time taken to travel to work is normally distributed with mean  $\mu$  and standard deviation  $\sigma$ . It is found that 4% of the population take less than 5 minutes to get to work, and 70% take less than 25 minutes.

Find the value of  $\mu$  and of  $\sigma$ .





2. The A random variable X is normally distributed with  $\mu = 150$  and  $\sigma = 10$ . Find the interquartile range of X.