## Normal Distribution – 2022 AS June

1. March/2022/Paper\_9709/52/No.4

stan	dard deviation 6 kg.
(a)	Find the probability that a randomly chosen male leopard from this region weighs between 46 and 62 kg.
	: 300
	200
	48
	weights of female leopards in this region are normally distributed with mean 42 kg and standard ation $\sigma$ kg. It is known that 25% of female leopards in the region weigh less than 36 kg.
<b>(b)</b>	Find the value of $\sigma$ .

The weights of male leopards in a particular region are normally distributed with mean 55 kg and

	distributions of the weights of male and female leopards are independent of each other. A male pard and a female leopard are each chosen at random.
(c)	Find the probability that both the weights of these leopards are less than 46 kg. [4]

The lengths, in cm, of the leaves of a particular type are modelled by the distribution $N(5.2,1.5^2)$ .		
(a)	Find the probability that a randomly chosen leaf of this type has length less than 6 cm. [2]	
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	Co	
mea	lengths of the leaves of another type are also modelled by a normal distribution. A scientist sures the lengths of a random sample of 500 leaves of this type and finds that 46 are less than 3 cm and 95 are more than 8 cm long.	
<b>(b)</b>	Find estimates for the mean and standard deviation of the lengths of leaves of this type. [5]	

2. June/2022/Paper\_9709/51/No.5

(a)	In a random sample of 2000 leaves of this second two bow many would the scientist expect to
(c)	In a random sample of 2000 leaves of this second type, how many would the scientist expect to find with lengths more than 1 standard deviation from the mean? [4]
	0.0

The	The weights, in kg, of bags of rice produced by Anders have the distribution $N(2.02,0.03^2)$ .		
(a)	Find the probability that a randomly chosen bag of rice produced by Anders weighs between 1.98 and 2.03 kg. [3]		
	.00		

**3.** June/2022/Paper\_9709/52/No.4

The weights of bags of rice produced by Binders are normally distributed with mean  $2.55\,\mathrm{kg}$  and standard deviation  $\sigma\,\mathrm{kg}$ . In a random sample of 5000 of these bags, 134 weighed more than  $2.6\,\mathrm{kg}$ .

(b) Find the value of  $\sigma$ .

<b>A</b> 2'0'

4.	June/2022/Paper_9709/53/No.5 Farmer Jones grows apples. The weights, in grams, of the apples grown this year are normally distributed with mean 170 and standard deviation 25. Apples that weigh between 142 grams are 205 grams are sold to a supermarket.			
	(a)	Find the probability that a randomly chosen apple grown by Farmer Jones this year is sold to the supermarket. [4]		
		A0'0'		
		***		

Farmer Jones sells the apples to the supermarket at \$0.24 each. He sells apples that weigh more than 205 grams to a local shop at \$0.30 each. He does not sell apples that weigh less than 142 grams.

The total number of apples grown by Farmer Jones this year is 20000.

( <b>b</b> )	Calculate an estimate for his total income from this year's apples.	[3]
	_0	(
	29	
Farı dist	rmer Tan also grows apples. The weights, in grams, of the apples grown stribution $N(182, 20^2)$ . 72% of these apples have a weight more than w grams	this year follow the
	Find the value of $w$ .	[3]