EXAM PAPERS PRACTICE

GCSE OCR Math J560
Basic Probability

Answers

"We will help you to achieve A Star "

Answer 1

The probability that a biased dice will land on a five is 0.3 — P(A)

Megan is going to roll the dice 400 times. A

Work out an estimate for the number of times the dice will land on a five.

$$n(A) = P(A) \times \text{NUMBER OF TRIALS}$$

$$n(5) = 0.3 \times 400$$

$$= \underline{120}$$

120

Answer 2

Rhiana plays a game.

The probability that she will lose the game is 0.32
The probability that she will draw the game is 0.05

Rhiana is going to play the game 200 times.

Work out an estimate for the number of times Rhiana will win the game.

TOTAL PROBABILITY = 1

	LOSE	DRAW	WIN
P	0.32	0.05	?

$$0.32 + 0.05 + ? = 1$$

$$? = 1 - 0.32 - 0.05$$

$$P(w) = \underline{0.63}$$

$$n(w) = \text{NUMBER OF GAMES} \times P(w)$$

$$= 200 \times 0.63$$

$$= \underline{126}$$

Answer 3

Jane has a packet of seeds.
The probability that a seed will grow is 0.75

(a) What is the probability that a seed will **not** grow?

$$P(G') = 1 - P(G)$$
$$= 1 - 0.75 \quad = 0.25$$

PROBABILITY

$$P(A) + P(A') = 1$$

Answer 4

Jane plants 200 of these seeds.

(b) Estimate the number of the seeds that will grow.

$$n(G) = P(G) \times \text{TOTAL NUMBER OF SEEDS}$$

$$n(G) = 0.75 \times 200$$

$$= \underline{\underline{150}}$$

Answer 5

Uditi has a bag of chocolate sweets.

There are 30 sweets in the bag.

This table shows the types of sweets in the bag.

(a)

	Strawberry	Caramel	Nut
Dark chocolate	3	1	6
Milk chocolate	4	5	2
White chocolate	1	4	4

$+ \quad + \quad = 9$

(b)

Uditi takes at random a sweet from the bag.

(a) Write down the probability that the sweet is a dark chocolate caramel.

$$P(DCC) = \frac{1}{30}$$

Answer 6

Carol spins a spinner 80 times.

The table shows information about her results.

Outcome	Frequency
J	39
K	25
L	16

Dan spins this spinner 300 times.

Work out an estimate for the number of times that Dan will get an L.

CAROL: $P(L) = \dfrac{16}{80} = \dfrac{8 \times 2}{8 \times 10} = \dfrac{1}{5}$

DAN: $n(L) = 300 \times P(L)$

$= 300 \times \dfrac{1}{5}$

$= \dfrac{300}{5}$

$= \underline{\underline{60}}$

Answer 7

When a drawing pin is dropped it can land point down or point up.

Lucy, Mel and Tom each dropped the drawing pin a number of times.

The table shows the number of times the drawing pin landed point down and the number of times the drawing pin landed point up for each person.

	Lucy	Mel	Tom	TOTALS
point down	31	53	16	100
point up	14	27	9	50
TOTALS	45	80	25	150

Rachael is going to drop the drawing pin once.

(a) Whose results will give the best estimate for the probability that the drawing pin will land point up?
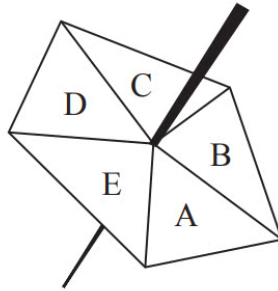Give a reason for your answer.

MEL - MOST EXPERIMENTS

Answer 8

Here is a five-sided spinner.

The table shows the probabilities that the spinner will land on A or on B or on C or on D.

Letter	A	B	C	D	E
Probability	0.25	0.10	0.20	0.15	

Kirsty spins the spinner once.

(a) Work out the probability that the spinner will land on E.

Answer 9

There are some black pens, some blue pens, some red pens and some green pens in a box.

The table shows the probabilities that a pen taken at random from the box will be black or will be blue or will be red.

colour	black	blue	red	green
probability	0.3	0.2	0.4	P

There are 200 pens in the box.

(a) Work out the number of black pens in the box.

$$n(\text{BLACK}) = 200 \times P(\text{BLACK})$$

$$= 200 \times 0.3$$

$$= 60 \text{ BLACK PENS}$$

$$\frac{\begin{array}{r} 200 \\ 3^{\times} \end{array}}{600}$$

$$60 \div 10$$

Answer 10

There are some green counters, some yellow counters, some blue counters and some red counters in a bag.

The table shows the probabilities that a counter taken at random from the bag will be green or yellow or red.

Colour	Green	Yellow	Blue	Red
Probability	0.16	0.4	P	0.24

Mary takes at random a counter from the bag.

(a) Work out the probability that the counter will be blue.

TOTAL PROBABILITY = 1
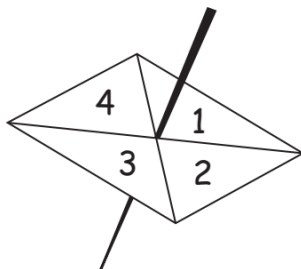
$$0.16 + 0.4 + p + 0.24 = 1$$

$$p + 0.8 = 1$$
$$-0.8 \quad -0.8$$

$$p = 0.2$$

Answer 11

Here is a four sided spinner.
The spinner is biased.

The table shows the probabilities that the spinner will land on 1 or on 3

Number	1	2	3	4
Probability	0.2	P	0.1	P

The probability that the spinner will land on 2 is the same as the probability that the spinner will land on 4

(a) Work out the probability that the spinner will land on 4

(FIND p)

$0.2 + p + 0.1 + p = 1$

TOTAL PROBABILITY = 1

$P(A) + P(A') = 1$

$0.3 + 2p = 1$

$-0.3 \qquad -0.3$

$2p = 0.7$

$\div 2 \rightarrow \quad P = 0.35$

Answer 12

There are only red counters, blue counters, white counters and black counters in a bag.

The table shows the probability that a counter taken at random from the bag will be red or blue.

Colour	red	blue	white	black
Probability	0.2	0.5	P	P

The number of white counters in the bag is the same as the number of black counters in the bag.

Tania takes at random a counter from the bag.

$$\boxed{\text{TOTAL PROBABILITY} = 1}$$

(a) Work out the probability that Tania takes a white counter. $= P$

$$0.2 + 0.5 + P + P = 1$$

$$0.7 + 2P = 1$$
$$\underline{-0.7} \qquad \underline{-0.7}$$

$$\frac{2P}{2} = \frac{0.3}{2}$$

$$P = \underline{0.15}$$

Answer 13

There are 240 counters in the bag.

(b) Work out the number of red counters in the bag

$$N(RED) = 240 \times P(RED)$$

$$N(RED) = 240 \times 0.2$$

$$= 48.0$$

$$= \underline{\underline{48}}$$

Answer 14

Shunya is going to spin the spinner 200 times.

(b) Work out an estimate for the number of times the spinner will land on 3

$$N(3) = \text{TOTAL SPINS} \times P(3)$$
$$= 200 \times 0.1$$
$$= 20$$

Answer 15

There are some dark chocolates, some milk chocolates and some white chocolates in a box.

The table below shows the probabilities that a chocolate taken at random from the box is a dark chocolate or is a milk chocolate.

	Dark chocolate	Milk chocolate	White chocolate
Probability	0.35	0.17	P

A chocolate is taken at random from the box.

(c) Work out the probability that the chocolate is a white chocolate.

$$0.35 + 0.17 + p = 1$$

$$0.52 + p = 1$$
$$-0.52 \qquad -0.52$$
$$p = 0.48$$

TOTAL PROBABILITY = 1
$$P(A) + P(A') = 1$$