5.5 Answers

5.5.1 Solution to 5.2 Probability word sum

$$\frac{3}{11}\ \textit{and}\ \frac{4}{5}\ \textit{or}\ \frac{5}{11}\ \textit{and}\ \frac{3}{5} = \frac{3}{11}\times\frac{4}{5} + \frac{5}{11}\times\frac{3}{5}$$
$$= \frac{12}{55} + \frac{15}{55}$$
$$= \frac{27}{55}$$

5.5.2 Solution to 5.3 Example

(i)

$$\frac{3}{7}\times\frac{2}{7} = \frac{6}{49}$$

(ii)

$$\frac{1}{7}\times\frac{1}{7} + \frac{3}{7}\times\frac{3}{7} + \frac{2}{7}\times\frac{2}{7} + \frac{1}{7}\times\frac{1}{7} = \frac{1}{49} + \frac{9}{49} + \frac{4}{49} + \frac{1}{49}$$
$$= \frac{15}{49}$$

5.5.3 Solution to 5.4 Exercise

Answer 1

(i) $\frac{24}{40}$ **(ii)** $\frac{37}{49}$ **(iii)** $\frac{63}{77}$ **(iv)** $\frac{30}{39}$

Answer 2

(i) $\frac{2}{64}$ **(ii)** $\frac{6}{64}$ **(iii)** $\frac{18}{64}$

Answer 3

(i) $\frac{1}{169}$ **(ii)** $\frac{12}{169}$ **(iii)** $\frac{30}{169}$

Answer 4

(i) $\frac{1}{4}$ **(ii)** $\frac{1}{8}$ **(iii)** $\frac{1}{16}$ **(iv)** $\ldots, \frac{1}{32}, \frac{1}{64}, \frac{1}{128}, \ldots,$

Answer 5

(i) $\frac{10}{11}$ **(ii)** $\frac{98}{150}$ **(iii)** $\frac{25}{49}$ **(iv)** $\frac{79}{200}$

Answer 6

(i)

$$\frac{1}{2} \times \frac{1}{2} \times \frac{1}{6} = \frac{1}{24}$$

(ii)

$$\frac{1}{2} \times \frac{5}{6} \times \frac{1}{2} = \frac{5}{24}$$

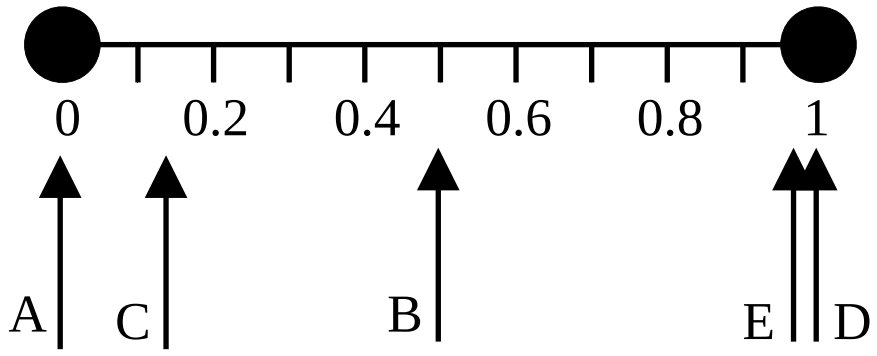
(iii)

$$\frac{1}{2} \times \frac{5}{6} \times \frac{5}{6} = \frac{25}{72}$$

Answer 7

Fact 1 : zero
Fact 2 : zero
Fact 3 : one
Fact 4 : zero
Fact 5 : more

Answer 8



Answer 9

(i) $\frac{1}{256}$ **(ii)** $\frac{6}{256}$ **(iii)** $\frac{144}{256}$

Answer 10

(i) It's harder to order the marks, or make other comparisons between them..

(ii) ... or spot mistakes.

$$\frac{19}{20} \text{ is the mistake}$$

(iii) If you wanted to mentally square root $\frac{18}{8}$ it is easy if it's cancelled down;

$$\sqrt{\frac{18}{8}} = \sqrt{\frac{9}{4}} = \frac{3}{2}$$

If you want to add these two fractions,

$$\frac{8}{12} + \frac{10}{12}$$

it would made it harder to cancel down first,

$$\frac{2}{3} + \frac{5}{6}$$

In probability questions it's often best not to cancel down.