Numerical Reasoning
Practice Test 1

Many employers use psychometric testing in their recruitment process, with numerical reasoning tests often included.

The questions used in the following test are based on those available on the www.assessmentday.co.uk and www.graduatesfirst.com websites.

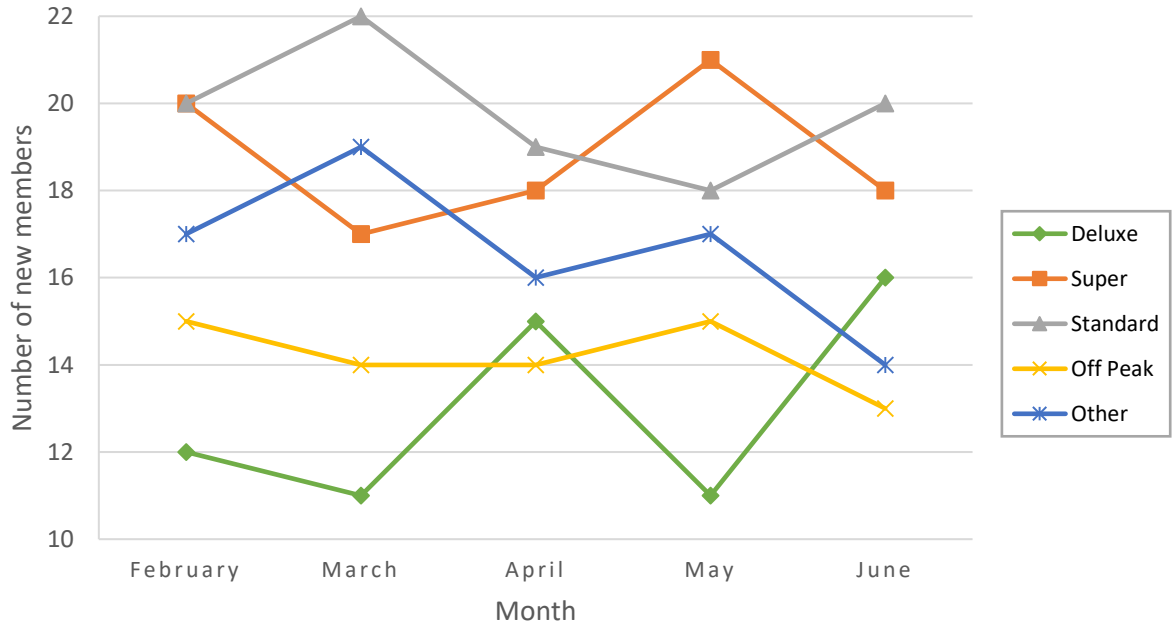
This test comprises 23 questions and you have 25 minutes to complete it.

The main numerical skills required for the test typically relate to percentages, ratios and reading/interpreting charts and graphs. Often the same data is used for several questions, so it is advisable get a clear grasp of the context before starting your calculations.

Calculators are allowed, so make sure that you are familiar with yours and are confident in using it.

Question 1

The chart below shows the number of new members by type (i.e. level of membership) at a Fitness Centre each month.



In which month is the greatest number of new members obtained?

☐ February

☐ March

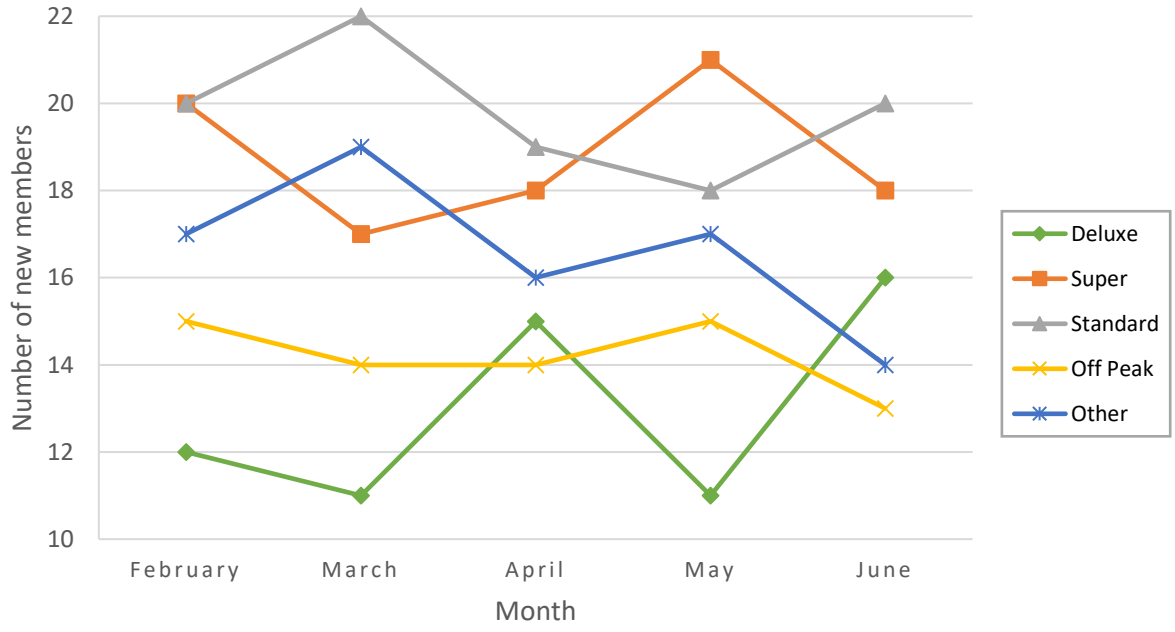
☐ April

☐ May

☐ June

Question 2

The chart below shows the number of new members by type (i.e. level of membership) at a Fitness Centre each month.



In April what percentage (to the nearest whole number) of the new members are Super?

☐ 18%

☐ 19%

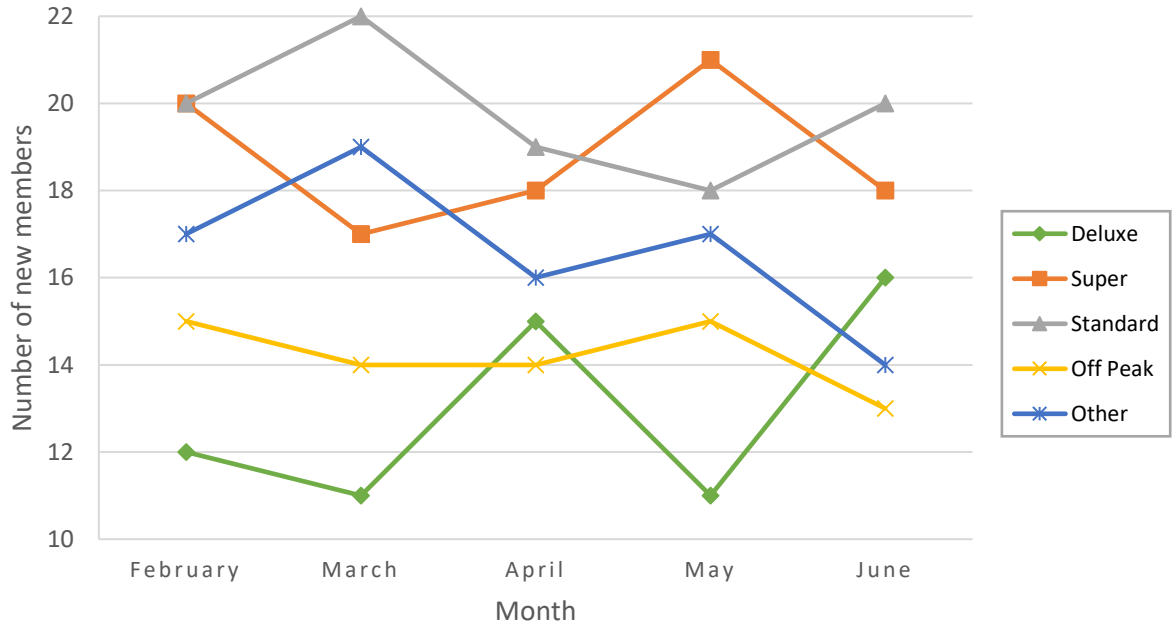
☐ 20%

☐ 21%

☐ 22%

Question 3

The chart below shows the number of new members by type (i.e. level of membership) at a Fitness Centre each month.



Over the 5 month period, what is the average number of Deluxe new members per month?

☐ 11

☐ 12

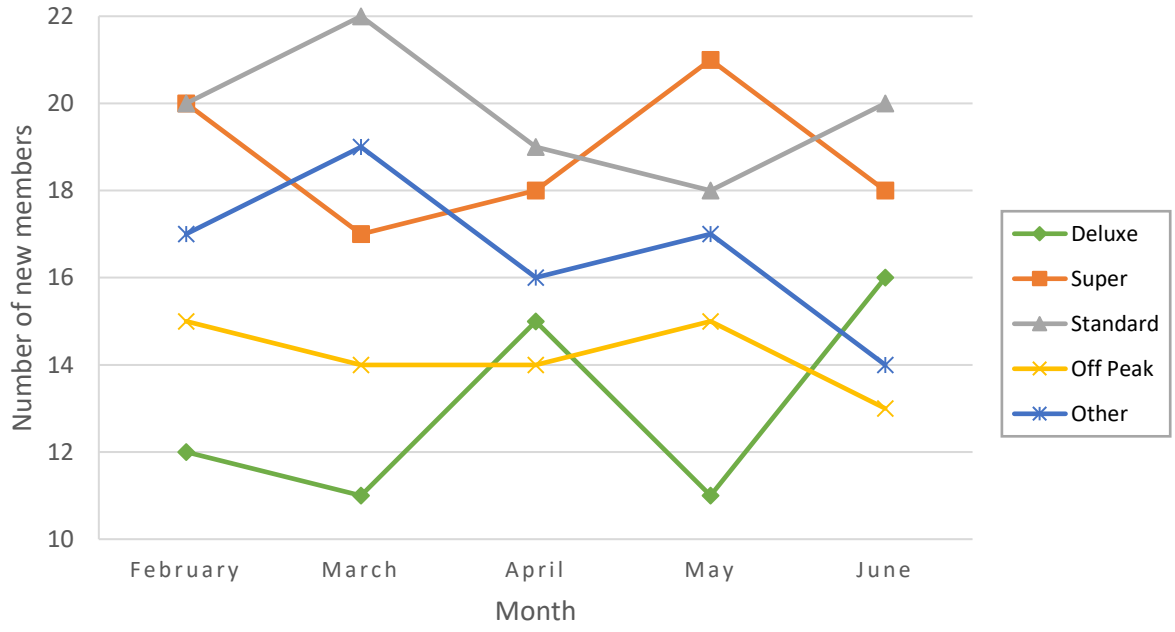
☐ 13

☐ 14

☐ 15

Question 4

The chart below shows the number of new members by type (i.e. level of membership) at a Fitness Centre each month.



In May, what is the ratio of Super new members to Off Peak new members?

☐ 5: 11

☐ 11: 5

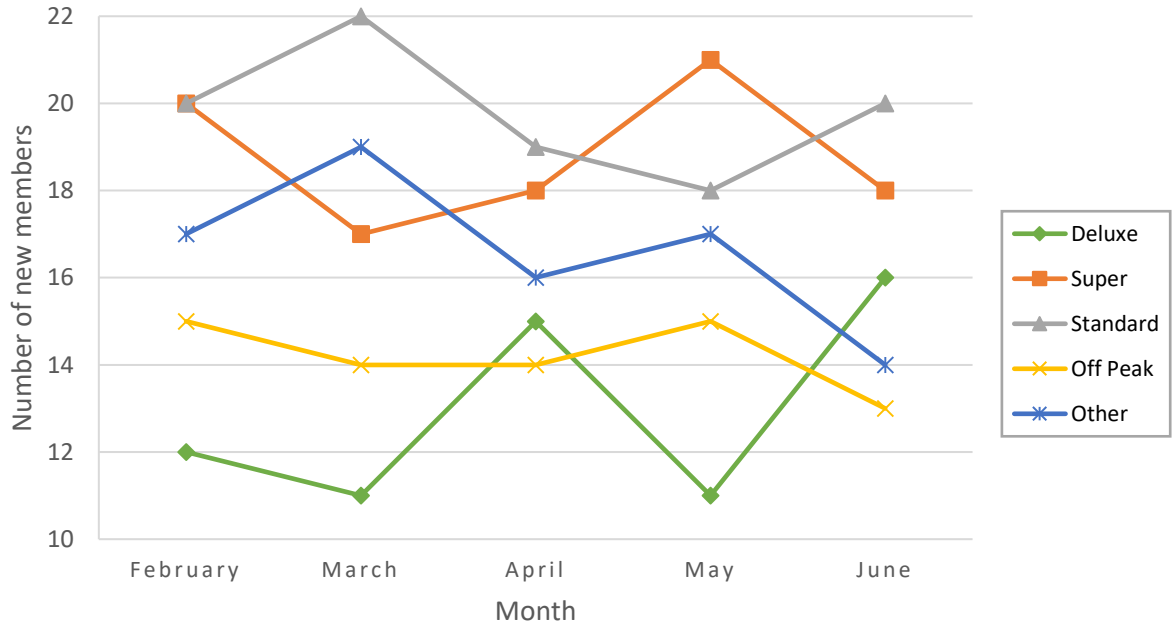
☐ 2: 5

☐ 6: 5

☐ 7: 5

Question 5

The chart below shows the number of new members by type (i.e. level of membership) at a Fitness Centre each month.



What is the best approximation to the percentage increase in Standard new members between February and March?

☐ 2%

☐ 9%

☐ 10%

☐ 11%

☐ 21%

Question 6

A client has a portfolio of shares in 5 companies and is reviewing their annual performance.

Company type	Number of shares held at 1st Jan	Price per share (pence) at 1st Jan	Price per share (pence) at 31st Dec
Media	8,000	250	290
Insurance	6,500	350	380
Retail	9,000	440	510
Energy	13,500	300	355
Leisure	20,000	190	230

Which company's shares contribute the greatest value to the portfolio on 1st January?

☐ Media

☐ Insurance

☐ Retail

☐ Energy

☐ Leisure

Question 7

A client has a portfolio of shares in 5 companies and is reviewing their annual performance.

Company type	Number of shares held at 1st Jan	Price per share (pence) at 1st Jan	Price per share (pence) at 31st Dec
Media	8,000	250	290
Insurance	6,500	350	380
Retail	9,000	440	510
Energy	13,500	300	355
Leisure	20,000	190	230

Which company produced the greatest percentage increase in the price per share over the year?

☐ Media

☐ Insurance

☐ Retail

☐ Energy

☐ Leisure

Question 8

A client has a portfolio of shares in 5 companies and is reviewing their annual performance.

Company type	Number of shares held at 1st Jan	Price per share (pence) at 1st Jan	Price per share (pence) at 31st Dec
Media	8,000	250	290
Insurance	6,500	350	380
Retail	9,000	440	510
Energy	13,500	300	355
Leisure	20,000	190	230

In June, half of the shares in Insurance are sold at $402p$ per share. The money received is reinvested in the same company on 31st December. How many shares does the client hold in Insurance at the end of the year?

☐ 6,144

☐ 6,688

☐ 9,938

☐ 6,322

☐ 6,876

Question 9

A client has a portfolio of shares in 5 companies and is reviewing their annual performance.

Company type	Number of shares held at 1st Jan	Price per share (pence) at 1st Jan	Price per share (pence) at 31st Dec
Media	8,000	250	290
Insurance	6,500	350	380
Retail	9,000	440	510
Energy	13,500	300	355
Leisure	20,000	190	230

Between 1st January and 1st May the share price of Retail falls by 10%. What percentage increase in the price per share takes place between 1st May and 31st December?

☐ 28.78%

☐ 22.35%

☐ 27.73%

☐ 18.60%

☐ 25.91%

Question 10

A client has a portfolio of shares in 5 companies and is reviewing their annual performance.

Company type	Number of shares held at 1st Jan	Price per share (pence) at 1st Jan	Price per share (pence) at 31st Dec
Media	8,000	250	290
Insurance	6,500	350	380
Retail	9,000	440	510
Energy	13,500	300	355
Leisure	20,000	190	230

Which of the following ratios best represents the ratio of the number of shares held in Retail and in Energy on 1st January?

☐ 2: 3

☐ 9: 13

☐ 9: 14

☐ 10: 7

☐ 3: 2

Question 11

A client has a portfolio of shares in 5 companies and is reviewing their annual performance.

Company type	Number of shares held at 1st Jan	Price per share (pence) at 1st Jan	Price per share (pence) at 31st Dec
Media	8,000	250	290
Insurance	6,500	350	380
Retail	9,000	440	510
Energy	13,500	300	355
Leisure	20,000	190	230

Over a 3 year period, the price per share of Leisure is expected to show the same annual percentage change as it does in the first year. What is the expected price per share of Leisure at the end of the 3 year period?

☐ 307 pence

☐ 310 pence

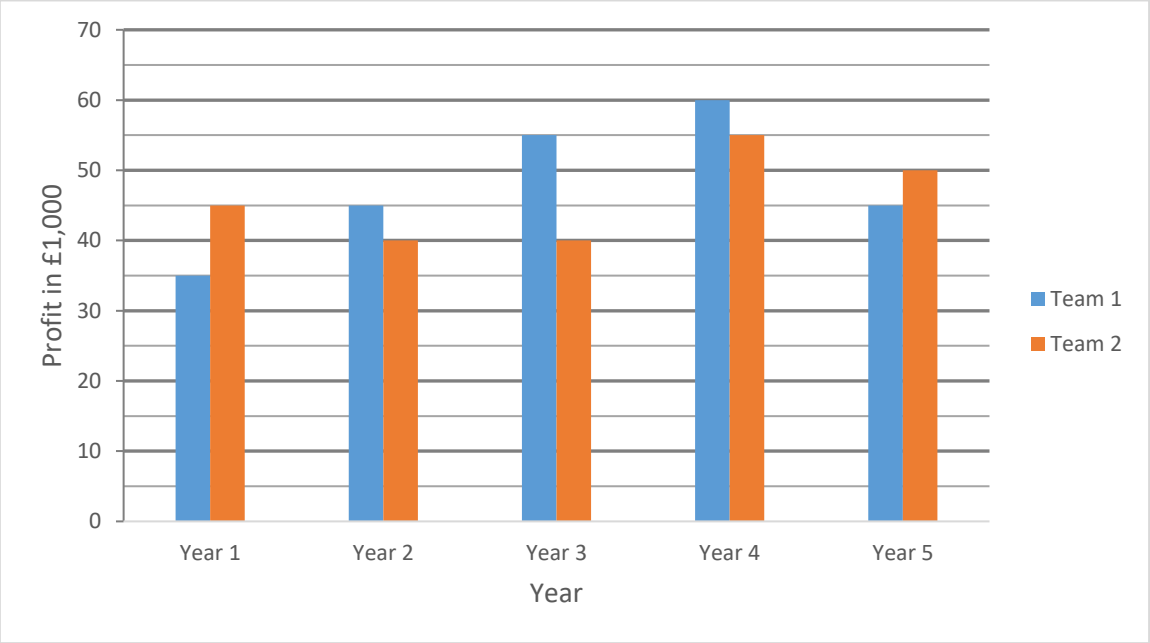
☐ 337 pence

☐ 361 pence

☐ 408 pence

Question 12

This chart shows the annual profit made by two teams within a company over 5 years.



Over the period Year 1 to Year 4 (inclusive) what is the total profit for Team 1?

☐ £240,000

☐ £183,000

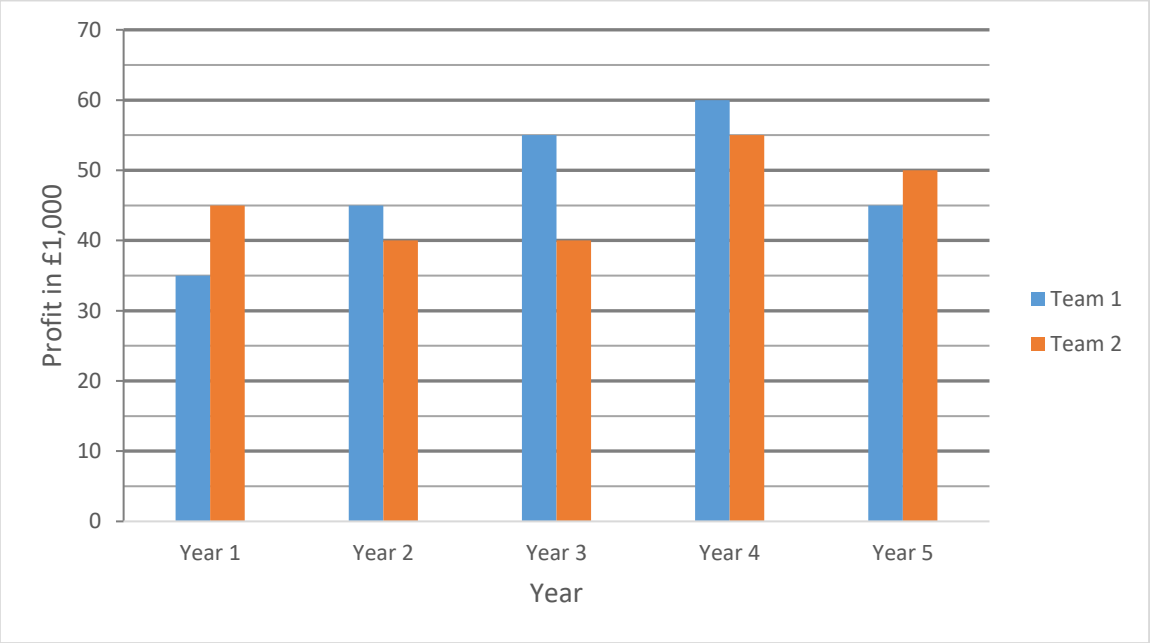
☐ £135,000

☐ £195,000

☐ £180,000

Question 13

This chart shows the annual profit made by two teams within a company over 5 years.



What is the greatest difference between the profits made by the two teams in a year?

☐ £5,000

☐ £10,000

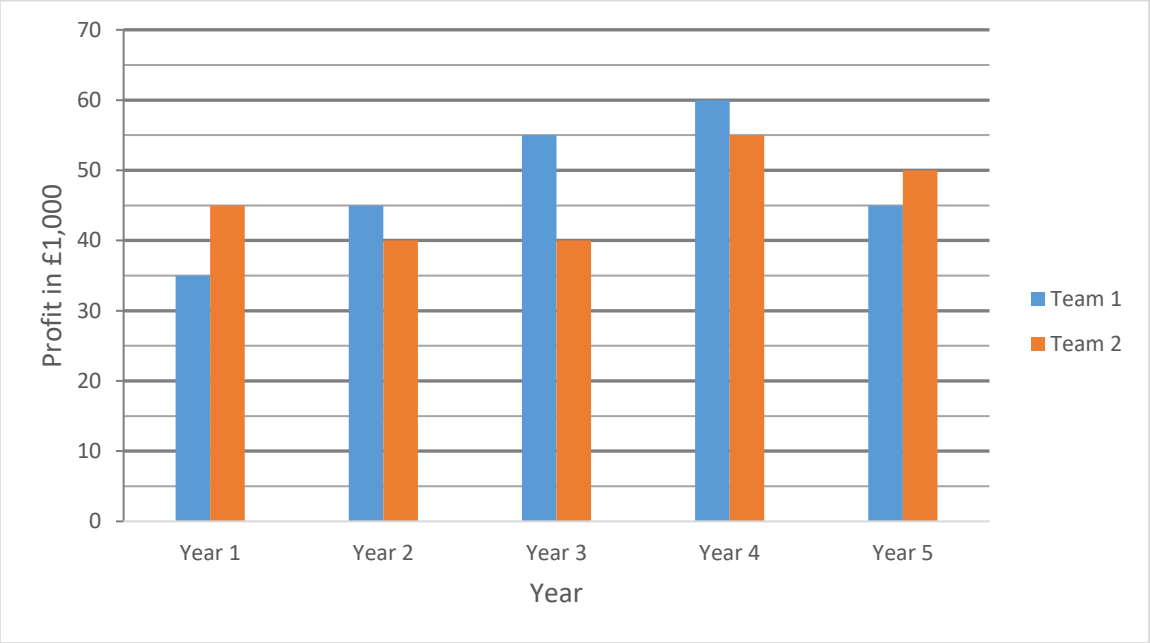
☐ £15,000

☐ £20,000

☐ £25,000

Question 14

This chart shows the annual profit made by two teams within a company over 5 years.



What is the average annual profit for Team 2 over the 5 year period?

☐ £46,000

☐ £48,000

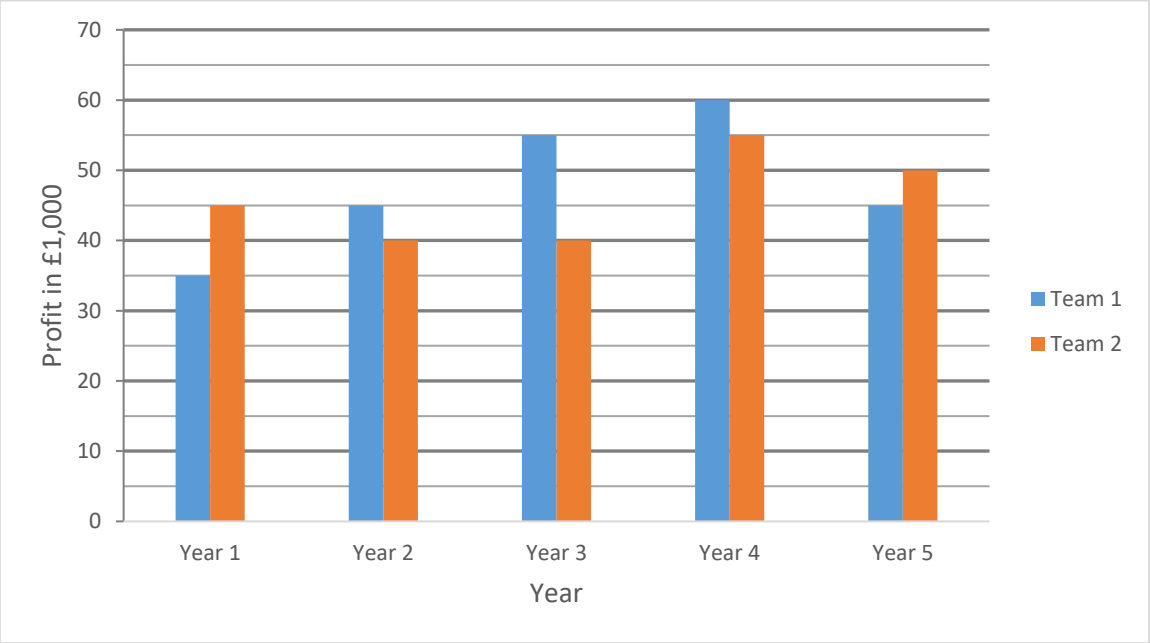
☐ £50,000

☐ £230,000

☐ £240,000

Question 15

This chart shows the annual profit made by two teams within a company over 5 years.



Which of the following ratios best represents the ratio of profits between Team 1 in Year 2 and Team 2 in Year 4?

☐ 1: 2

☐ 2: 3

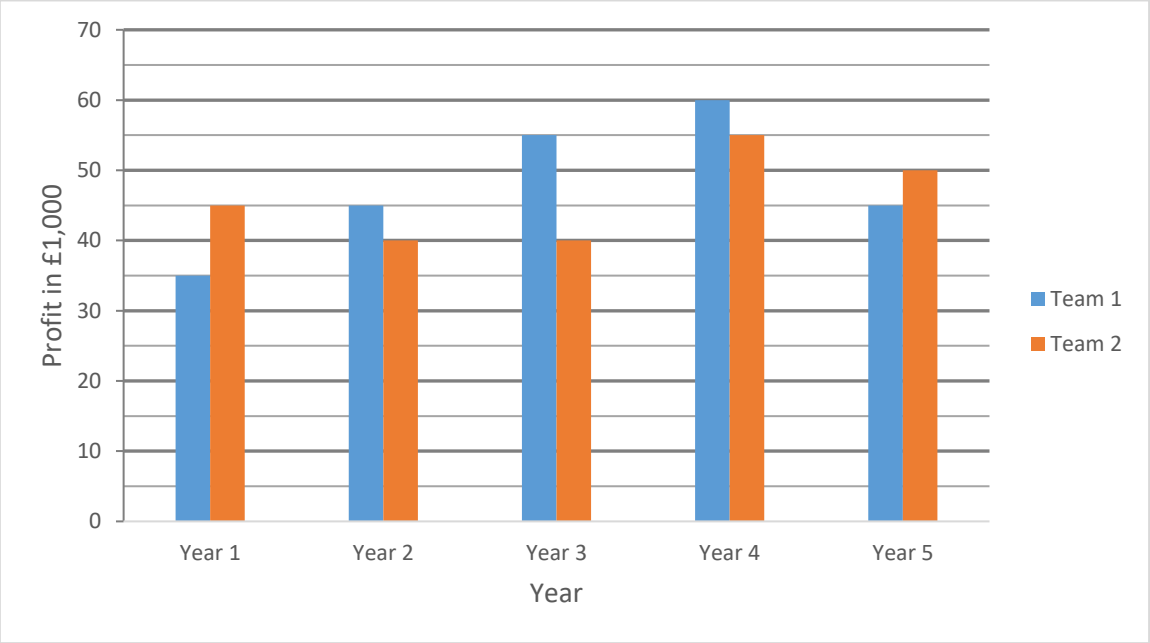
☐ 3: 4

☐ 8: 11

☐ 9: 11

Question 16

This chart shows the annual profit made by two teams within a company over 5 years.



What is the percentage increase in total profits between Year 2 and Year 3?

☐ 11.8%

☐ 10.0%

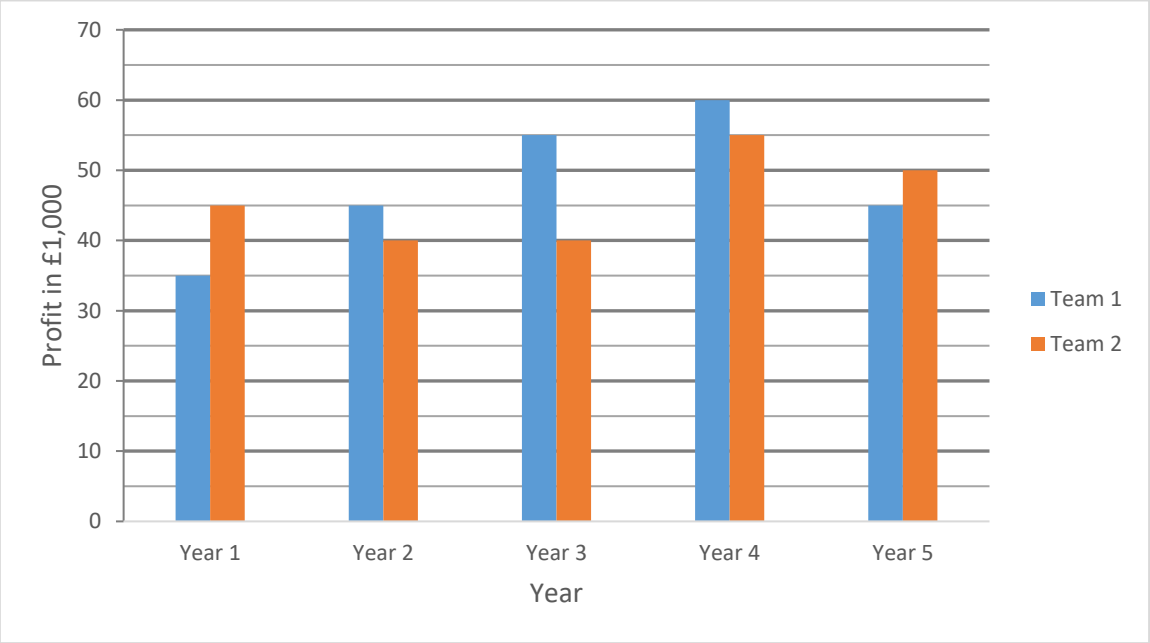
☐ 11.1%

☐ 25.0%

☐ 22.2%

Question 17

This chart shows the annual profit made by two teams within a company over 5 years.



Comparing each year, what is the smallest percentage contribution to annual profit made by Team 2?

☐ 40.0%

☐ 42.1%

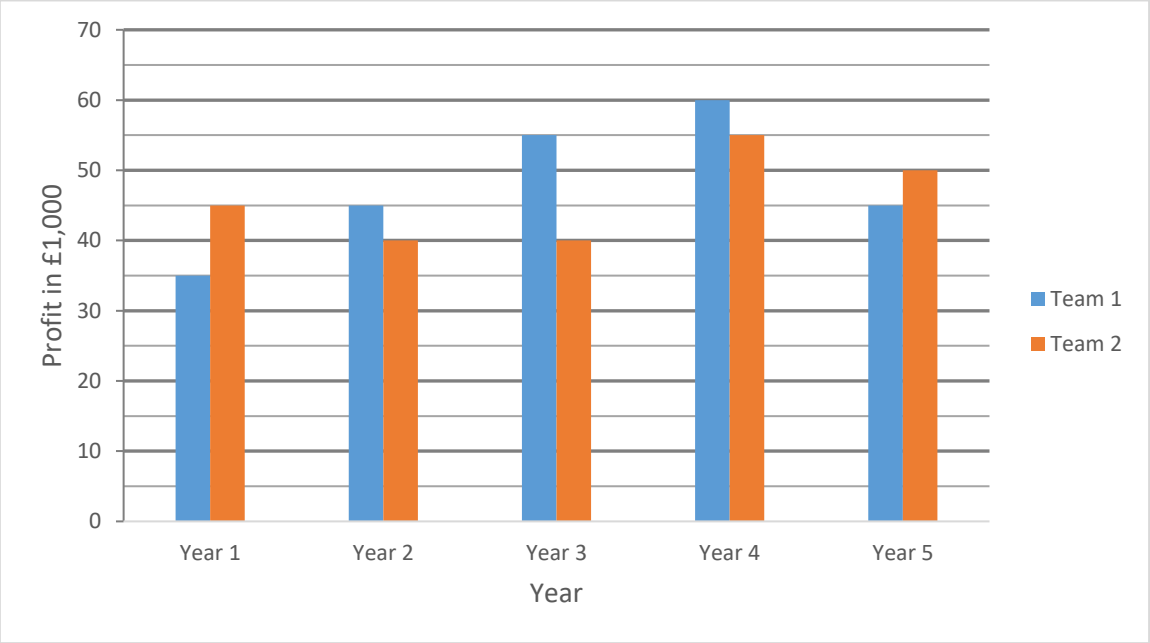
☐ 43.8%

☐ 47.1%

☐ 47.8%

Question 18

This chart shows the annual profit made by two teams within a company over 5 years.



On the basis of the Year 5 profits a forecast is made for Year 6. It is predicted that Team 1 will increase their profits by 4% while Team 2's profits will decrease by 4%. What will be the forecast for the percentage increase in total profits?

☐ 4%

☐ 0.21%

☐ 0%

☐ −0.21%

☐ −4%

Question 19

The table below shows the hours worked by five employees for a week. Any hours worked in excess of 35 are paid at 'time and a half'.

Employee	Grade	Hours	Gross Pay (£)	Deductions (£)	Net Pay (£)
Azhda	I	23	300	70	230
Bathusha	II	37	400	90	310
Chris	I	40	500	110	390
Dean	II	42	520	120	400
Emily	I	33	380	80	300

Which employee is paid the highest rate of pay per hour?

☐ Azhda

☐ Bathusha

☐ Chris

☐ Dean

☐ Emily

Question 20

The table below shows the hours worked by five employees for a week. Any hours worked in excess of 35 are paid at 'time and a half'.

Employee	Grade	Hours	Gross Pay (£)	Deductions (£)	Net Pay (£)
Azhda	I	23	300	70	230
Bathusha	II	37	400	90	310
Chris	I	40	500	110	390
Dean	II	42	520	120	400
Emily	I	33	380	80	300

Which employee has the smallest percentage of deductions from gross pay?

☐ Azhda

☐ Bathusha

☐ Chris

☐ Dean

☐ Emily

Question 21

The table below shows the hours worked by five employees for a week. Any hours worked in excess of 35 are paid at 'time and a half'.

Employee	Grade	Hours	Gross Pay (£)	Deductions (£)	Net Pay (£)
Azhda	I	23	300	70	230
Bathusha	II	37	400	90	310
Chris	I	40	500	110	390
Dean	II	42	520	120	400
Emily	I	33	380	80	300

For how many of the employees is Net Pay less than 80% of their Gross Pay?

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

Question 22

The table below shows the hours worked by five employees for a week. Any hours worked in excess of 35 are paid at 'time and a half'.

Employee	Grade	Hours	Gross Pay (£)	Deductions (£)	Net Pay (£)
Azhda	I	23	300	70	230
Bathusha	II	37	400	90	310
Chris	I	40	500	110	390
Dean	II	42	520	120	400
Emily	I	33	380	80	300

A backdated pay rise increases total gross pay by 1.5%. Total Deductions increase by 2%. By what percentage does Total Net Pay increase?

☐ 0.25%

☐ 1.34%

☐ 1.36%

☐ 1.75%

☐ 2.51%

Question 23

The table below shows the hours worked by five employees for a week. Any hours worked in excess of 35 are paid at 'time and a half'.

Employee	Grade	Hours	Gross Pay (£)	Deductions (£)	Net Pay (£)
Azhda	I	23	300	70	230
Bathusha	II	37	400	90	310
Chris	I	40	500	110	390
Dean	II	42	520	120	400
Emily	I	33	380	80	300

Consider the total of overtime hours worked by these employees. What percentage is worked by Grade I workers?

☐ 33.33%

☐ 35.71%

☐ 36.36%

☐ 64.29%

☐ 66.67%

END OF TEST

This resource was produced by the **sigma** Network Employability Special Interest Group whose members are:

- Dr Kinga Zaczek, Royal Holloway, University of London
- Frances Whalley, University of Hertfordshire
- David Faulkner, University of Hertfordshire
- Laura Hooke, Loughborough University London