

# Numerical Test 6

## Solutions Booklet

### Instructions

This numerical reasoning test comprises **30 questions**, and you will have **30 minutes** in which to correctly answer as many as you can. Calculators are permitted for this test, and it is recommended you have some rough paper to work on.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time. Each question will have five possible answers, one of which is correct. You may click Back and Next during the test to review or skip questions.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will begin on the next page.**

Product code	Non-European stores selling product	Current month's sales (\$)	Price per product unit (\$)
DE45*	14	35,000	175
PU20*	9	20,000	200
AE25	6	13,000	130
PU10**	5	24,000	150
FD24**	7	9,000	180

\* Promotional offer = 3 for the price of 2

\*\* Promotional offer = 4 for the price of 3

Product code	European stores selling product	Current month's sales (€)	Price per product unit (€)
DE45	26	21,000	150
PU20	19	30,000	160
AE25	11	24,500	200
PU10	9	18,700	110
FD24	13	14,700	90

**Q1** Which of the products shown had the lowest value of sales per non-European store and which had the highest value of sales per European store?

- (A) PU10 (non-European); AE25 (European)
- (B) FD24 (non-European); DE45 (European)
- (C) FD24 (non-European); AE25 (European)
- (D) AE25 (non-European); PU10 (European)
- (E) AE25 (non-European); FD24 (European)

**Step 1** – Calculate each product's average sales per European store

$$DE45 = 21,000/26 = 808$$

$$PU20 = 30,000/19 = 1,579$$

$$AE25 = 24,500/11 = 2,227$$

$$PU10 = 18,700/9 = 2,078$$

$$FD24 = 14,700/13 = 1,131$$

**Step 2** – Calculate each product's average sales per non-European store

$$DE45 = 35,000/14 = 2,500$$

$$PU20 = 20,000/9 = 2,222$$

$$AE25 = 13,000/6 = 2,167$$

$$PU10 = 24,000/5 = 4,800$$

$$FD24 = 9,000/7 = 1,286$$

Thus the correct answer is (C) FD24 (non-European); AE25 (European)

Product code	Non-European stores selling product	Current month's sales (\$)	Price per product unit (\$)
DE45*	14	35,000	175
PU20*	9	20,000	200
AE25	6	13,000	130
PU10**	5	24,000	150
FD24**	7	9,000	180

\* Promotional offer = 3 for the price of 2

\*\* Promotional offer = 4 for the price of 3

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DE45	26	21,000	150
PU20	19	30,000	160
AE25	11	24,500	200
PU10	9	18,700	110
FD24	13	14,700	90

**Q2** What is the discrepancy (in \$) between the AE25 price per product unit in non-European stores compared to European stores. Use an exchange rate of €0.80 to the \$.

- (A) \$30
- (B) \$120
- (C) \$130
- (D) \$200
- (E) \$230

*The information that you need is shown in both tables. Note from the possible answers it doesn't matter which is the greater, we just need the difference.*

**Tip:** If you struggle with the term "€X to the \$" and you sometimes multiply when you should divide by the conversion, think of an extreme example. So think of a two currencies that have very different strengths, for example Zimbabwean Dollar to the British Pound. It doesn't matter what the values are but you know there are lots of ZWDs to the BGP and you also know that the same product will cost a lot more ZWDs than GBP. Hopefully that will help you decide if currency A should be a higher number than currency B, or vice versa.

**Step 1** – Read from the table the AE25 price per product unit (non-European stores)  
= \$130

**Step 2** – Calculate the AE25 price per product unit (European stores)  
= €200 ÷ 0.80 = \$250

**Step 3** – Calculate the difference between the two  
\$250 - \$130 = \$120

Thus the correct answer is (B) \$120

Product code	Non-European stores selling product	Current month's sales (\$)	Price per product unit (\$)
DE45*	14	35,000	175
PU20*	9	20,000	200
AE25	6	13,000	130
PU10**	5	24,000	150
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\* Promotional offer = 3 for the price of 2

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Product code	European stores selling product	Current month's sales (€)	Price per product unit (€)
DE45	26	21,000	150
PU20	19	30,000	160
AE25	11	24,500	200
PU10	9	18,700	110
FD24	13	14,700	90

**Q3** This month's combined target for non-European and European sales of AE25 is €40,000. Using an exchange rate of €0.75 to the \$, what is the difference between the sales values shown and this target?

- (A) €575
- (B) €750
- (C) €5,100
- (D) €5,750
- (E) €7,500

*The information that you need is shown in both tables*

**Step 1** – Calculate AE25's non-European sales in Euros

$$\$13,000 \times €0.75 = €9,750$$

**Step 2** – Calculate AE25's combined European and non-European sales

$$€9,750 + €24,500 = €34,250$$

**Step 3** – Calculate the discrepancy against target sales

$$€40,000 - €34,250 = €5,750$$

*Thus the correct answer is (D) €5,750*

Product code	Non-European stores selling product	Current month's sales (\$)	Price per product unit (\$)
DE45*	14	35,000	175
PU20*	9	20,000	200
AE25	6	13,000	130
PU10**	5	24,000	150
FD24**	7	9,000	180

\* Promotional offer = 3 for the price of 2

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Product code	European stores selling product	Current month's sales (€)	Price per product unit (€)
DE45	26	21,000	150
PU20	19	30,000	160
AE25	11	24,500	200
PU10	9	18,700	110
FD24	13	14,700	90

**Q4** Combining European and non-European sales, which products generated the highest number of product units sold? Use the non-promotional sales prices shown.

- (A) DE45
- (B) PU20
- (C) AE25
- (D) PU10
- (E) FD24

*The information that you need is shown in both tables.*

**Step 1** – Calculate the number of sales per product (non-European stores)

	Product unit sales
DE45	$35,000/175 = 200$
PU20	$20,000/200 = 100$
AE25	$13,000/130 = 100$
PU10	$24,000/150 = 160$
FD24	$9,000/180 = 50$

**Step 2** – Calculate the number of sales per product (European stores)

DE45	€145	$21,000/150 = 140$
PU20	€185	$30,000/160 = 187.5$
AE25	€240	$24,500/200 = 122.5$
PU10	€110	$18,700/110 = 170$

FD24	€150	$14,700/90 = 163.33$
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**Step 3** – Calculate the total number of sales per product

<b>DE45</b>	<b><math>200 + 140 = 340</math></b>
PU20	$100 + 187.5 = 287.5$
AE25	$100 + 122.5 = 222.5$
PU10	$160 + 170 = 330$
FD24	$50 + 63.33 = 213.33$

Thus the correct answer is (A) DE45

Product code	Non-European stores selling product	Current month's sales (\$)	Price per product unit (\$)
DE45*	14	35,000	175
PU20*	9	20,000	200
AE25	6	13,000	130
PU10**	5	24,000	150
FD24**	7	9,000	180

\* Promotional offer = 3 for the price of 2

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Product code	European stores selling product	Current month's sales (€)	Price per product unit (€)
DE45	26	21,000	150
PU20	19	30,000	160
AE25	11	24,500	200
PU10	9	18,700	110
FD24	13	14,700	90

**Q5** Given that a customer uses the promotional offers shown, put the 5 products sold in non-European stores into order of increasing promotional price per unit (starting with the cheapest).

- (A) AE25, PU10, DE45, FD24, PU20
- (B) PU10, DE45, PU20, AE25, FD24
- (C) PU10, DE45, AE25, PU20, FD24
- (D) DE45, PU10, PU20, AE25, FD24
- (E) PU10, DE45, PU20, FD24, AE25

*The information that we need is shown in the first table (non-European stores)*

**Step 1** – Calculate the 3 for the price of 2 promotional offers

DE45 promotional price per unit =  $2/3 \times \$175 = \$116.67$

PU20 promotional price per unit =  $2/3 \times \$200 = \$133.33$

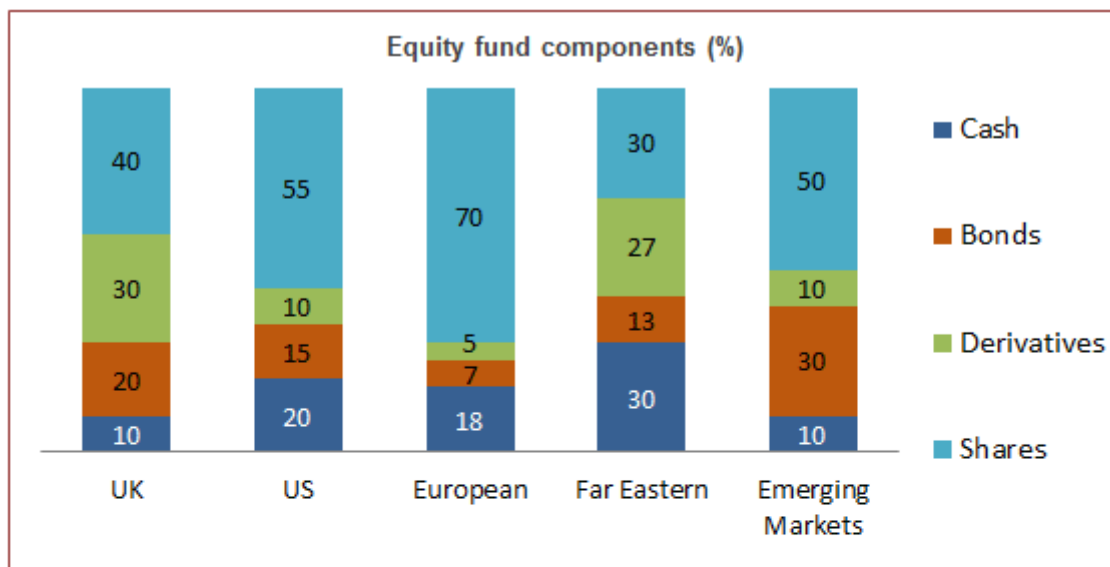
**Step 2** – Calculate the 4 for the price of 3 promotional offers

PU10 promotional price per unit =  $3/4 \times \$150 = \$112.50$

FD24 promotional price per unit =  $3/4 \times \$180 = \$135.00$

**Step 3** – Put these promotional prices into order alongside the fifth product (AE25) priced at \$130 and not on promotion

*Thus the correct answer is (C) PU10, DE45, AE25, PU20, FD24*



Equity fund values	UK	US	European	Far Eastern	Emerging Markets
Total value (£million)	55.6	24.3	52.1	26.2	38.9
Number of investors	3,450	1,460	3,295	1,575	2,660

**Q6** On the previous day, the value of the shares held in the Emerging Markets Fund was 0.5% lower than the values given here. What was the previous day's value of shares in the Emerging Markets Fund?

- (A) £18.35 million
- (B) £18.40 million
- (C) £18.50 million
- (D) £19.35 million
- (E) £19.40 million

*The information that we need is shown in both the graph and the table.*

**Step 1** - Calculate the value of the shares component of the Emerging Markets Fund

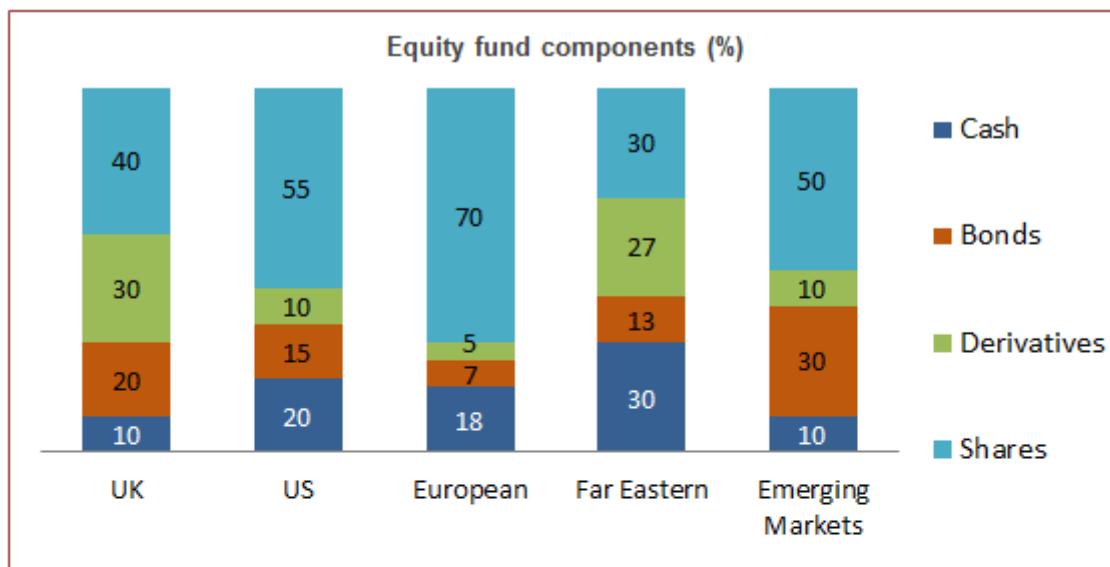
$$38.9 \text{ million} \times 50\% = £19.45 \text{ million}$$

**Step 2** – Calculate the previous day's value

$$£19.45 \text{ million} \times .995 = £19.35 \text{ million}$$

*Thus the correct answer is (D) £19.35 million*





Equity fund values	UK	US	European	Far Eastern	Emerging Markets
Total value (£million)	55.6	24.3	52.1	26.2	38.9
Number of investors	3,450	1,460	3,295	1,575	2,660

**Q7** Which out of the Emerging Markets, UK and Far Eastern funds hold the lowest value of Cash and the lowest value of Bonds?

- (A) UK (Cash); Far Eastern (Bonds)
- (B) Emerging Markets (Cash); Far Eastern (Bonds)
- (C) Far Eastern (Cash); UK (Bonds)
- (D) Emerging Markets (Cash); UK (Bonds)
- (E) UK (Cash); Far Eastern (Cash)

*The information that we need is shown in both the table and the graph.*

**Step 1** - Calculate the value of the Cash held within each of the Funds in the question

*Cash value = total value x cash %*

*UK (Cash) = 55.6 x 10% = £5.56 million*

*See table below:*

	Cash
UK	£5.56 million
Far Eastern	£7.86 million
<b>Emerging Markets</b>	<b>£3.89 million</b>

**Step 2** - Calculate the value of the Bonds held within each of the Funds in the question

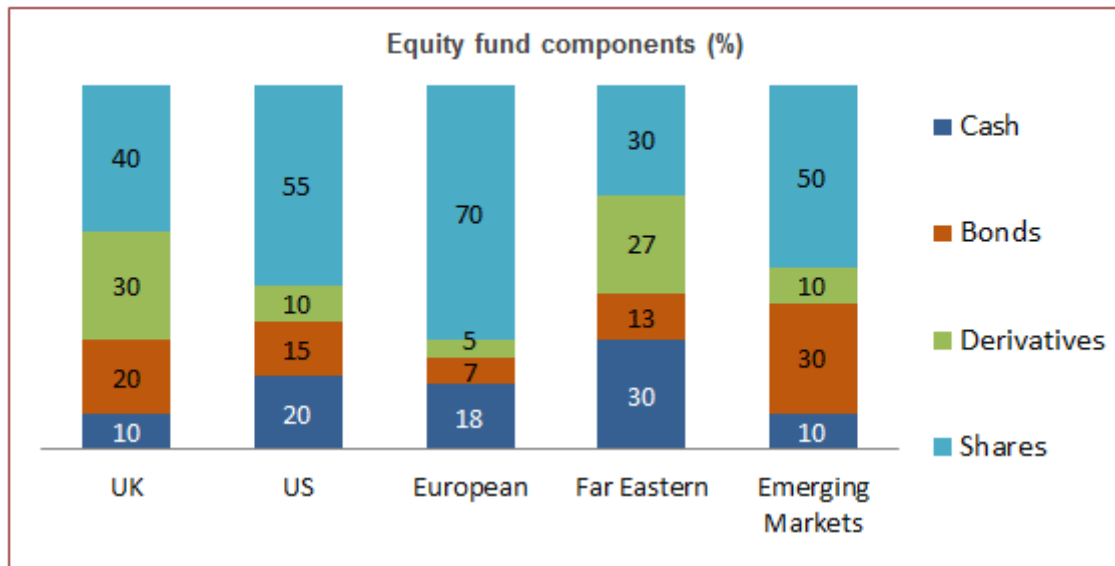
*Bonds value = total value x bonds %*

*UK (Bonds) = 55.6 x 20% = £11.12 million*

See table below:

	<i>Bonds</i>
<i>UK</i>	<i>£11.12 million</i>
<b><i>Far Eastern</i></b>	<b><i>£3.41 million</i></b>
<i>Emerging Markets</i>	<i>£11.67 million</i>

Thus the correct answer is (B) Emerging Markets (Cash); Far Eastern (Bonds)



Equity fund values	UK	US	European	Far Eastern	Emerging Markets
Total value (£million)	55.6	24.3	52.1	26.2	38.9
Number of investors	3,450	1,460	3,295	1,575	2,660

**Q8** Which equity fund has the highest average value per individual investor?

- (A) UK Fund
- (B) US Fund
- (C) European Fund
- (D) Far East Fund
- (E) Emerging Markets Fund

*The information that we need is shown in the table. Note there doesn't appear to be an obvious answer just from inspection so we must calculate each option.*

**Step 1** - For each equity fund calculate the average value per individual investor.

$$UK = 55.6 / 3,450 = £16,116$$

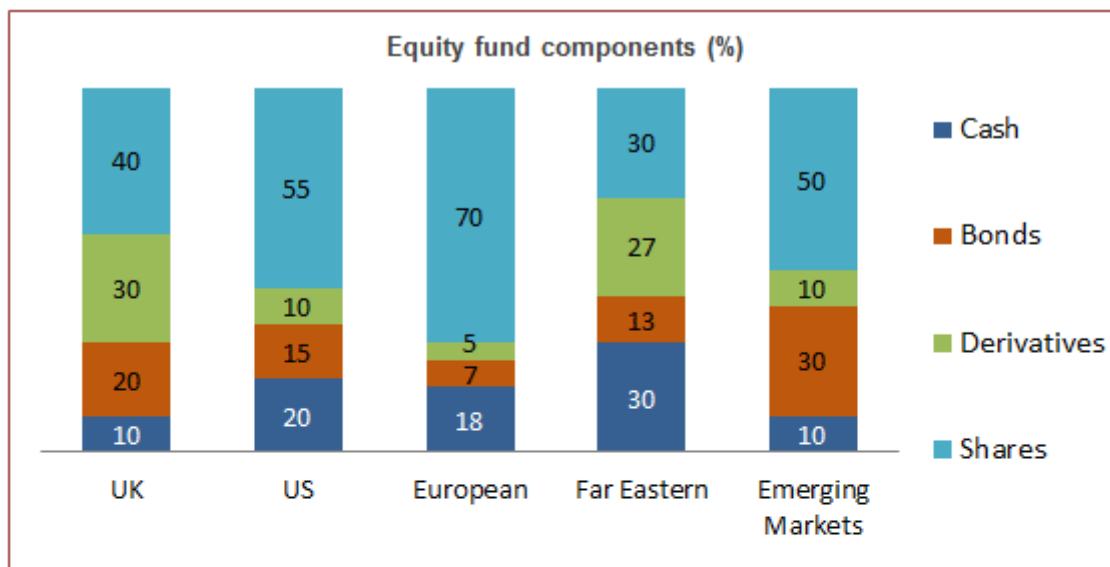
$$US = 24.3 / 1,460 = £16,644$$

$$European = 52.1 / 3,295 = £15,811$$

$$Far East = 26.2 / 1,575 = £16,635$$

$$Emerging Markets = 38.9 / 2,660 = £14,624$$

*Thus the correct answer is (B) US Fund*



Equity fund values	UK	US	European	Far Eastern	Emerging Markets
Total value (£million)	55.6	24.3	52.1	26.2	38.9
Number of investors	3,450	1,460	3,295	1,575	2,660

**Q9** Which of the components of the UK and US equity funds have the highest and the lowest value?

- (A) lowest is US Fund (Bonds); highest is UK Fund (Derivatives)
- (B) lowest is US Fund (Shares); highest is UK Fund (Shares)
- (C) lowest is UK Fund (Bonds); highest is US Fund (Shares)
- (D) lowest is US Fund (Bonds); highest is UK Fund (Shares)
- (E) lowest is US Fund (Derivatives); highest is UK Fund (Shares)

**Tip:** Note that just from looking at the graph and table we know the overall US fund is smaller than the UK fund and the smallest fraction within the US fund (10% to Derivatives) is not larger than the smallest fraction within the UK fund. So we can instantly say the smallest fraction is Derivatives in the US fund. As it happens there is only one multiple choice with this as an option so we know (E) is the correct answer.

In full, the solution is as follows. The information that we need is shown in both the graph and the table.

**Step 1** - Calculate the value of each component of each equity fund, using this formula:

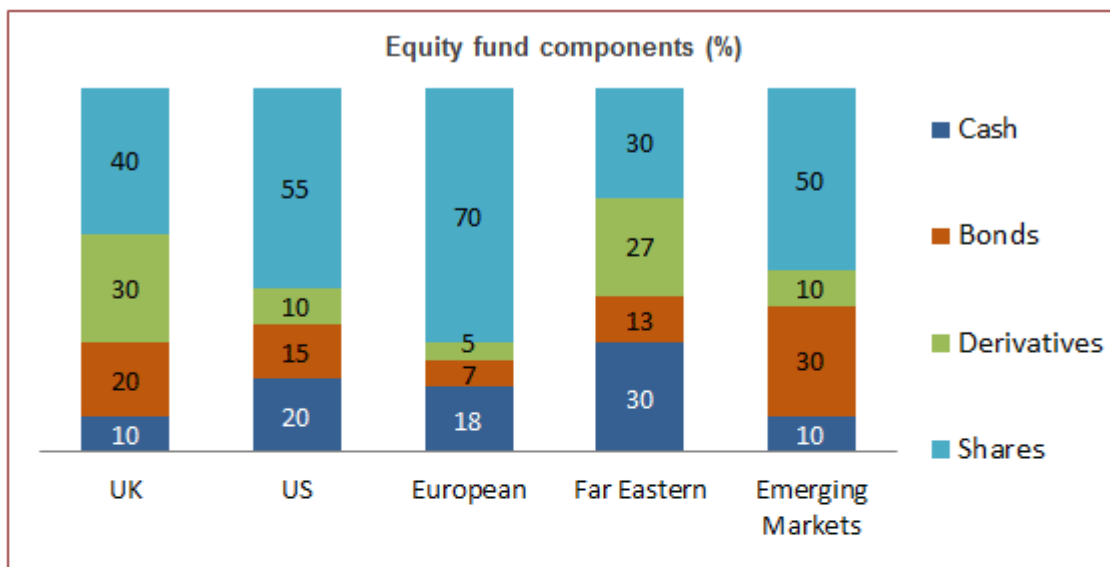
Component value = Total value x Equity fund component %

UK Fund (Cash) =  $55.6 \times 10\% = 5.56$  (£million)

See table below for other component values:

	Component value (£million)			
	Cash	Bonds	Derivatives	Shares
UK	5.56	11.12	16.68	<b>22.24</b>
US	4.86	3.65	<b>2.43</b>	13.37

Thus the correct answer is (E) lowest is US Fund (Derivatives); highest is UK Fund (Shares)



Equity fund values	UK	US	European	Far Eastern	Emerging Markets
Total value (£million)	55.6	24.3	52.1	26.2	38.9
Number of investors	3,450	1,460	3,295	1,575	2,660

**Q10** Which equity fund holding(s) hold less than double the number of Shares compared to Bonds?

- (A) UK
- (B) US
- (C) Emerging Markets
- (D) UK, US
- (E) UK, US, Emerging Markets

*The information that we need is shown in the graph.*

**Step 1** - Calculate the Shares: Bonds ratios for each equity fund

	Bonds	Shares
UK	20	40
US	15	55
European	7	70
Far Eastern	13	30
Emerging Markets	30	50

*The UK fund has exactly double the number of Shares compared to Bonds. Only the Emerging Markets has less than double the number of Shares compared to Bonds.*

*Thus the correct answer is (C) Emerging Markets*

MAINTENANCE COSTS (£ per week)						
Manufacturing Plant	Insurance	Servicing	Rent	Utilities	Administration	Misc.
Midlands	196	1,050	300	95	650	525
Bordeaux	204	1,100	250	236	600	400
Berlin	212	950	275	164	450	400
Amsterdam	154	1,025	350	245	525	500
Glasgow	195	875	300	189	720	425

**Q11** Averaged across the Manufacturing Plants, put the average values for each of the maintenance costs in decreasing size order, starting with the highest.

- (A) Servicing, Administration, Misc., Rent, Insurance, Utilities
- (B) Servicing, Administration, Rent, Misc., Utilities, Insurance
- (C) Servicing, Administration, Rent, Misc., Insurance, Utilities
- (D) Servicing, Administration, Misc., Rent, Utilities, Insurance
- (E) None of these

**Step 1** - Calculate the average for each maintenance cost:

Insurance = 192.2

Servicing = 1,000

Rent = 295

Utilities = 185.8

Administration = 589

Misc = 450

Thus the correct answer is (A) Servicing, Administration, Misc., Rent, Insurance, Utilities

MAINTENANCE COSTS (£ per week)						
Manufacturing Plant	Insurance	Servicing	Rent	Utilities	Administration	Misc.
Midlands	196	1,050	300	95	650	525
Bordeaux	204	1,100	250	236	600	400
Berlin	212	950	275	164	450	400
Amsterdam	154	1,025	350	245	525	500
Glasgow	195	875	300	189	720	425

**Q12** For which manufacturing plant(s) are the Administration: Rent costs in the ratio 12:5?

- (A) Bordeaux
- (B) Berlin
- (C) Midlands and Glasgow
- (D) Berlin and Midlands
- (E) Glasgow and Bordeaux

**Step 1** - Calculate the Administration: Rent cost ratio for each production plant, as follows:

Midlands	650:300 =	13:6
Bordeaux	600:250 =	12:5
Berlin	450:275 =	18:11
Amsterdam	525:350 =	21:14
Glasgow	720:300 =	12:5

Thus the correct answer is (E) Glasgow and Bordeaux



MAINTENANCE COSTS (£ per week)						
Manufacturing Plant	Insurance	Servicing	Rent	Utilities	Administration	Misc.
Midlands	196	1,050	300	95	650	525
Bordeaux	204	1,100	250	236	600	400
Berlin	212	950	275	164	450	400
Amsterdam	154	1,025	350	245	525	500
Glasgow	195	875	300	189	720	425

**Q13** For the Glasgow manufacturing plant, which maintenance cost(s) represent approximately 7% of the total costs?

- (A) Rent and Utilities
- (B) Rent
- (C) Utilities
- (D) Insurance
- (E) Insurance and Utilities

**Step 1** - For the Glasgow plant, calculate the total costs

$$195 + 875 + 300 + 189 + 720 + 425 = 2,704$$

**Step 2** - For the Glasgow plant, calculate each cost as a % of the total cost

$$\text{Insurance} = 100\% \times 195/2,704 = 7\%$$

$$\text{Servicing} = 100\% \times 875/2,704 = 32\%$$

$$\text{Rent} = 100\% \times 300/2,704 = 11\%$$

$$\text{Utilities} = 100\% \times 189/2,704 = 7\%$$

$$\text{Administration} = 100\% \times 720/2,704 = 27\%$$

$$\text{Misc} = 100\% \times 425/2,704 = 16\%$$

**Tip:** To save time, you can stop after you've calculated 7% for Insurance and just scan across the row to see if any other costs are close to £195. You will see that Utilities are.

Thus the correct answer is (E) Insurance and Utilities

MAINTENANCE COSTS (£ per week)						
Manufacturing Plant	Insurance	Servicing	Rent	Utilities	Administration	Misc.
Midlands	196	1,050	300	95	650	525
Bordeaux	204	1,100	250	236	600	400
Berlin	212	950	275	164	450	400
Amsterdam	154	1,025	350	245	525	500
Glasgow	195	875	300	189	720	425

**Q14** What is the average annual cost for servicing each of the 5 manufacturing plants (assume 4 weeks in a month)?

- (A) £3,300
- (B) £12,400
- (C) £16,500
- (D) £39,600
- (E) £48,000

**Step 1** – Total the servicing costs

$$1,050 + 1,100 + 950 + 1,025 + 875 = £5,000 \text{ per week}$$

**Step 2** – Calculate the monthly cost

$$5,000 \times 4 = £20,000 \text{ per month}$$

**Step 3** – Calculate the average monthly cost

$$£20,000 / 5 = £4,000 \text{ per month}$$

**Step 4** – Calculate the average annual cost

$$4,000 \times 12 = £48,000$$

Thus the correct answer is (E) £48,000

MAINTENANCE COSTS (£ per week)						
Manufacturing Plant	Insurance	Servicing	Rent	Utilities	Administration	Misc.
Midlands	196	1,050	300	95	650	525
Bordeaux	204	1,100	250	236	600	400
Berlin	212	950	275	164	450	400
Amsterdam	154	1,025	350	245	525	500
Glasgow	195	875	300	189	720	425

**Q15** Which two manufacturing plants have the same total maintenance costs per week?

- (A) Midlands and Glasgow
- (B) Bordeaux and Glasgow
- (C) Bordeaux and Amsterdam
- (D) Midlands and Amsterdam
- (E) None of these

**Step 1** - Calculate the total weekly maintenance costs for each production plant

Midlands =  $196 + 1,050 + 300 + 95 + 650 + 525 = 2,816$

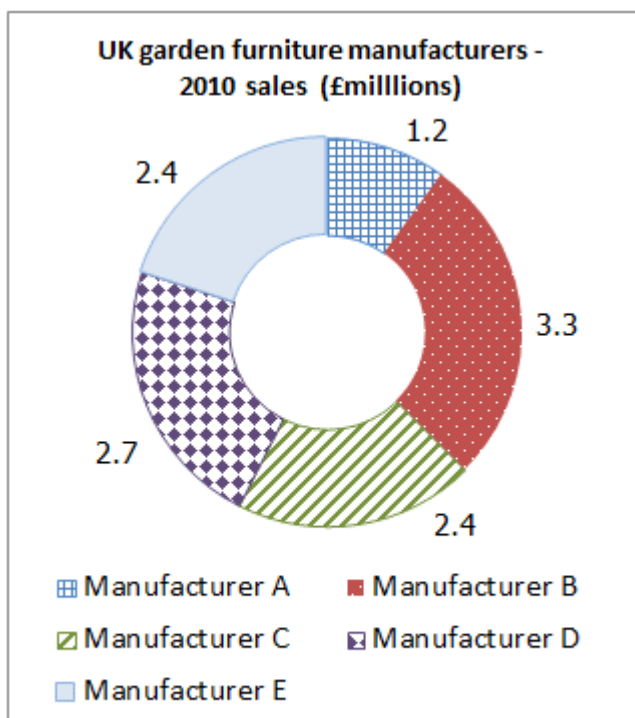
Bordeaux =  $204 + 1,100 + 250 + 236 + 600 + 400 = 2,790$

Berlin =  $212 + 950 + 275 + 164 + 450 + 400 = 2,451$

Amsterdam =  $154 + 1,025 + 350 + 245 + 525 + 500 = 2,799$

Glasgow =  $195 + 875 + 300 + 189 + 720 + 425 = 2,704$

Thus the correct answer is (E) None of these



COMPANY C SALES (£)		
REGION	2009	2010
Northern	312,500	278,500
Central	396,700	470,400
Southern	546,300	502,000
Eastern	595,500	643,100
Western	529,000	506,000

**Q16** Which garden furniture manufacturer has 22.5% of the UK market in terms of 2010 annual sales?

- (A) Manufacturer A
- (B) Manufacturer B
- (C) Manufacturer C
- (D) Manufacturer D
- (E) Manufacturer E

*The information that you need is shown in the pie-chart.*

**Step 1** – Calculate the total annual sales for all furniture manufacturers

$$1.2 + 3.3 + 2.4 + 2.7 + 2.4 = \text{£}12 \text{ million}$$

**Step 2** – Next, the quickest way to complete this question is to calculate 22.5% of the 12 million and see which manufacturer has this sales value. So 22.5% of 12 is 2.7. We immediately see that Manufacturer D has sales of 2.7 (ignoring any units).

*Alternatively, the slower way would be to calculate the % of the UK market held by each furniture manufacturer:*

$$\text{Manufacturer A} = 1.2/12 \times 100\% = 10\%$$

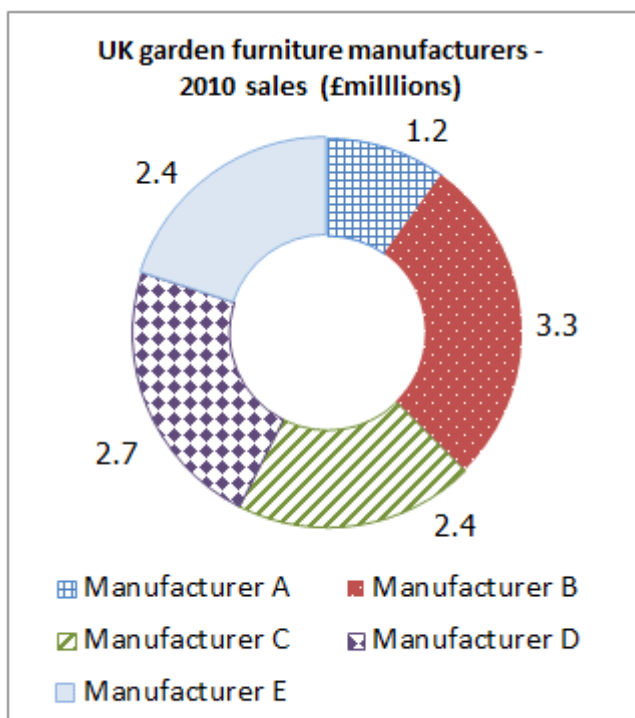
$$\text{Manufacturer B} = 3.3/12 \times 100\% = 27.5\%$$

$$\text{Manufacturer C} = 2.4/12 \times 100\% = 20\%$$

$$\text{Manufacturer D} = 2.7/12 \times 100\% = 22.5\%$$

$$\text{Manufacturer E} = 2.4/12 \times 100\% = 20\%$$

*Thus the correct answer is (D) Manufacturer D*



COMPANY C SALES (£)		
REGION	2009	2010
Northern	312,500	278,500
Central	396,700	470,400
Southern	546,300	502,000
Eastern	595,500	643,100
Western	529,000	506,000

**Q17** Manufacturers B and D each aim to increase their annual sales from 2010 to 2011 by a quarter. Manufacturers A, C and E each aim to grow their annual sales by a fifth. Assuming all companies meet these targets, what will be 2011's total furniture manufacturer sales (to the nearest £million)?

- (A) £13 million
- (B) £14 million
- (C) £15 million
- (D) £16 million
- (E) £17 million

*The information that you need is shown in the pie-chart.*

**Step 1** - Calculate the 2011 targets for each garden furniture manufacturer

Manufacturer A:  $1.2 \times 1.2 = 1.44$

Manufacturer B:  $3.3 \times 1.25 = 4.125$

Manufacturer C:  $2.4 \times 1.2 = 2.88$

Manufacturer D:  $2.7 \times 1.25 = 3.375$

Manufacturer E:  $2.4 \times 1.2 = 2.88$

**Step 2** – Calculate the total 2011 target for all garden furniture manufacturers

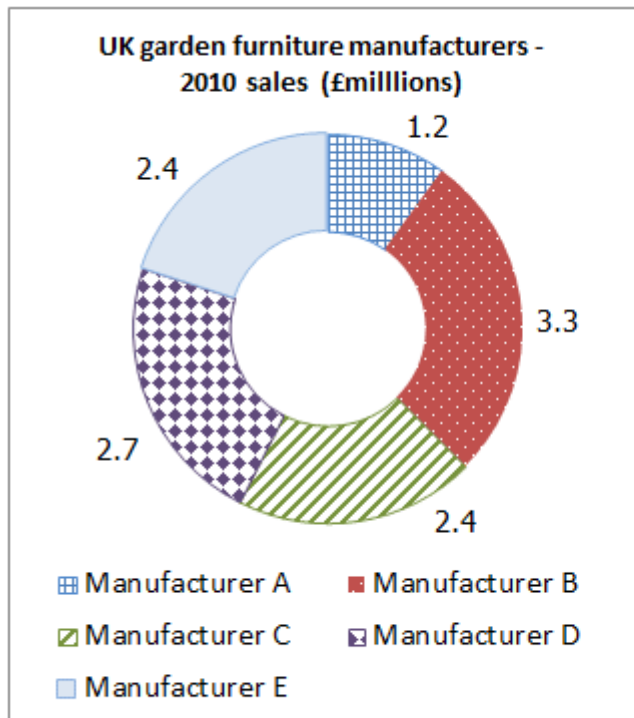
$1.44 + 4.125 + 2.88 + 3.375 + 2.88 = 14.7$

**Step 3** – To the nearest £million = £15 million

*Note: in this question we were lucky that £14.7 million was not an available answer.*

*Sometimes questions deliberately include the answer not rounded as required, to catch you out.*

Thus the correct answer is (C) £15 million



COMPANY C SALES (£)		
REGION	2009	2010
Northern	312,500	278,500
Central	396,700	470,400
Southern	546,300	502,000
Eastern	595,500	643,100
Western	529,000	506,000

**Q18** Which region showed the second largest absolute difference in Company C sales between 2009 and 2010?

- (A) Northern
- (B) Central
- (C) Southern
- (D) Eastern
- (E) Western

**Tip** - The word "absolute" in the question means we are considering the value of the change, not the percentage change.

The information that you need is shown in the table.

**Step 1** - Calculate the change in Company C sales (2009-2010) for each region

Northern:  $278,500 - 312,500 = -34,000$

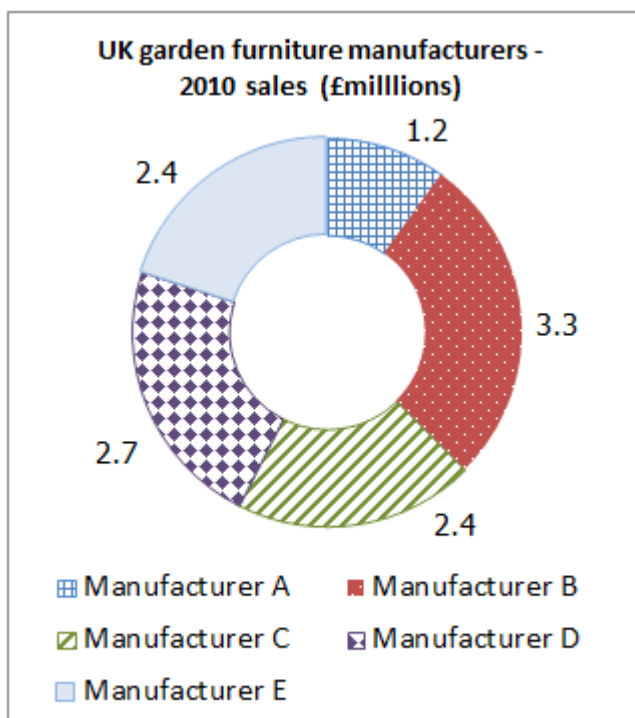
Central:  $470,400 - 396,700 = 73,700$

Southern:  $502,000 - 546,300 = -44,300$

Eastern:  $643,100 - 595,500 = 47,600$

Western:  $506,000 - 529,000 = -23,000$

Thus the correct answer is (D) Eastern



COMPANY C SALES (£)		
REGION	2009	2010
Northern	312,500	278,500
Central	396,700	470,400
Southern	546,300	502,000
Eastern	595,500	643,100
Western	529,000	506,000

**Q19** What is the percentage increase in Company C's total sales for 2010 compared its 2009 total sales?

- (A) 0.83%
- (B) 0.84%
- (C) 0.85%
- (D) 0.86%
- (E) 0.87%

*The information that you need is shown in the table.*

**Step 1 – Calculate 2009's total sales**

$$312,500 + 396,700 + 546,300 + 595,500 + 529,000 = 2,380,000$$

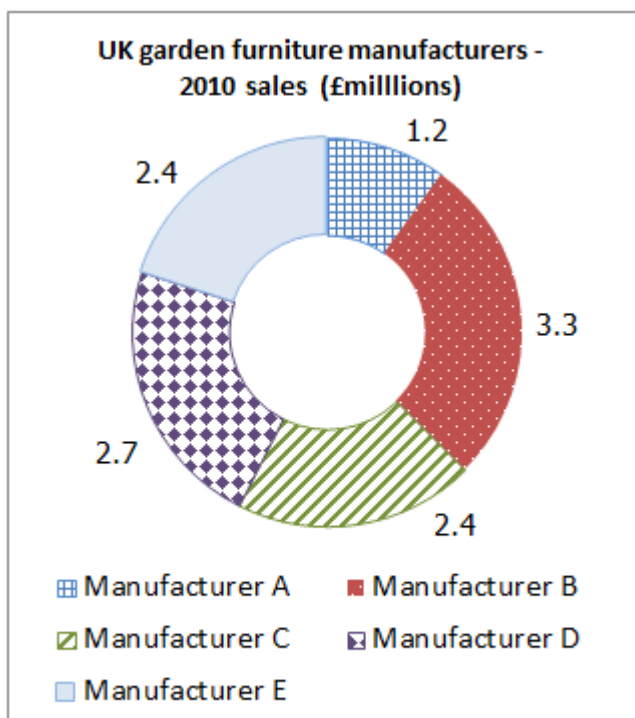
**Step 2 – Calculate 2010's total sales**

$$278,500 + 470,400 + 502,000 + 643,100 + 506,000 = 2,400,000$$

**Step 3 – Calculate the % difference**

$$2,400,000 / 2,380,000 = 1.0084 \text{ which is a } 0.84\% \text{ increase.}$$

*Thus the correct answer is (B) 0.84%*



COMPANY C SALES (£)		
REGION	2009	2010
Northern	312,500	278,500
Central	396,700	470,400
Southern	546,300	502,000
Eastern	595,500	643,100
Western	529,000	506,000

**Q20** If Company C's sales in 2009 were in the ratio of 8:7 for online: offline sales, what were the offline sales (to the nearest £1,000)?

- (A) £110,000
- (B) £1,000,000
- (C) £1,100,000
- (D) £1,110,000
- (E) £1,111,000

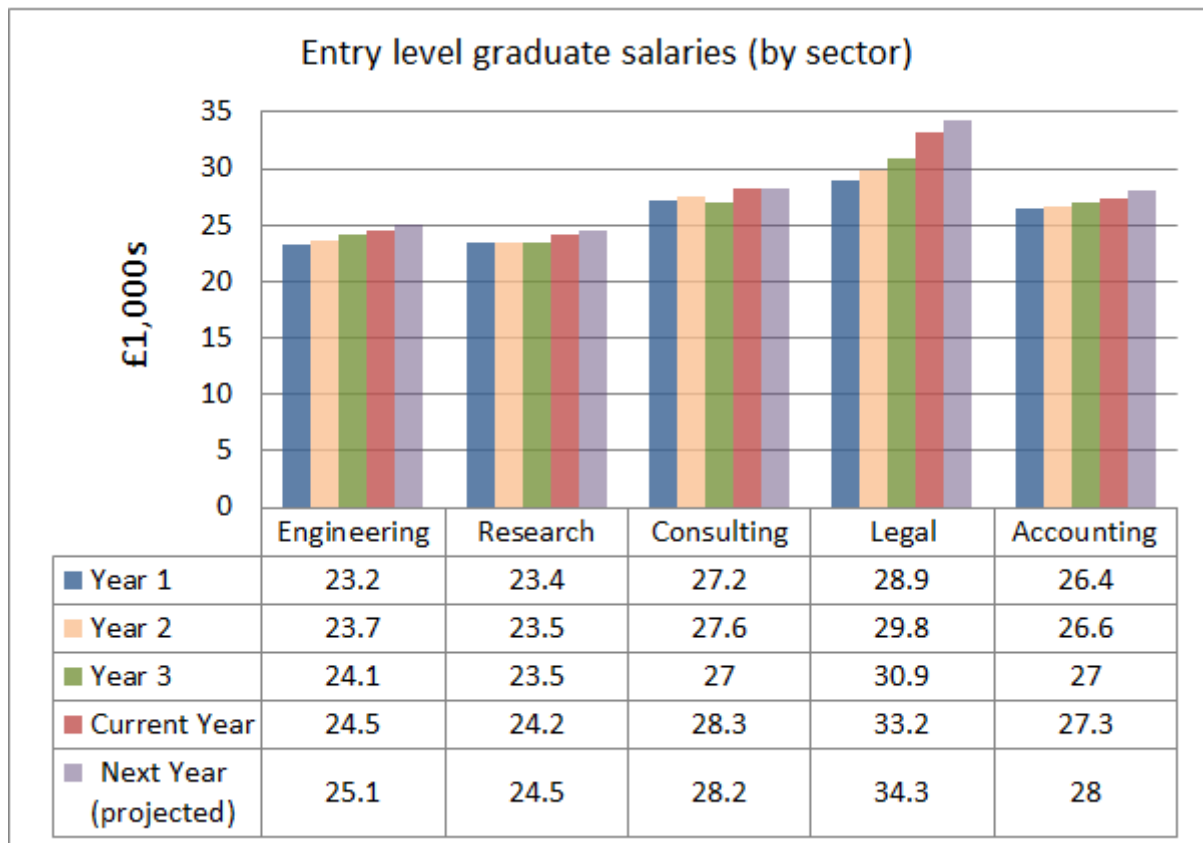
**Step 1** – Use Manufacturer C's 2009 total sales figure from the previous question  
i.e. 2,380,000 (312,500 + 396,700 + 546,300 + 595,500 + 529,000)

**Step 2** – Put this figure into the question's ratio  
Online sales + offline sales = 2,380,000  
Offline sales =  $(2,380,000 \times 7) / (7+8) = 1,110,667$

**Step 3** - To the nearest £1,000 = 1,111,000

Thus the correct answer is (E) £1,111,000





**Q21** Assume that the percentage change trends between the Current Year and Next Year continue at the same rate for a subsequent year. What's the subsequent year's average entry level graduate salary across the 5 sectors (to the nearest £500)?

- (A) £28,000
- (B) £28,500
- (C) £29,000
- (D) £29,500
- (E) Can't tell from data

*It might be tempting to do the following calculation, however since we don't know how many graduates there are in each sector we cannot calculate the average salary. For example if Engineering has 1,000 graduates and Research has 10, it is not true to add up the totals and divide by the number of sectors (five).*

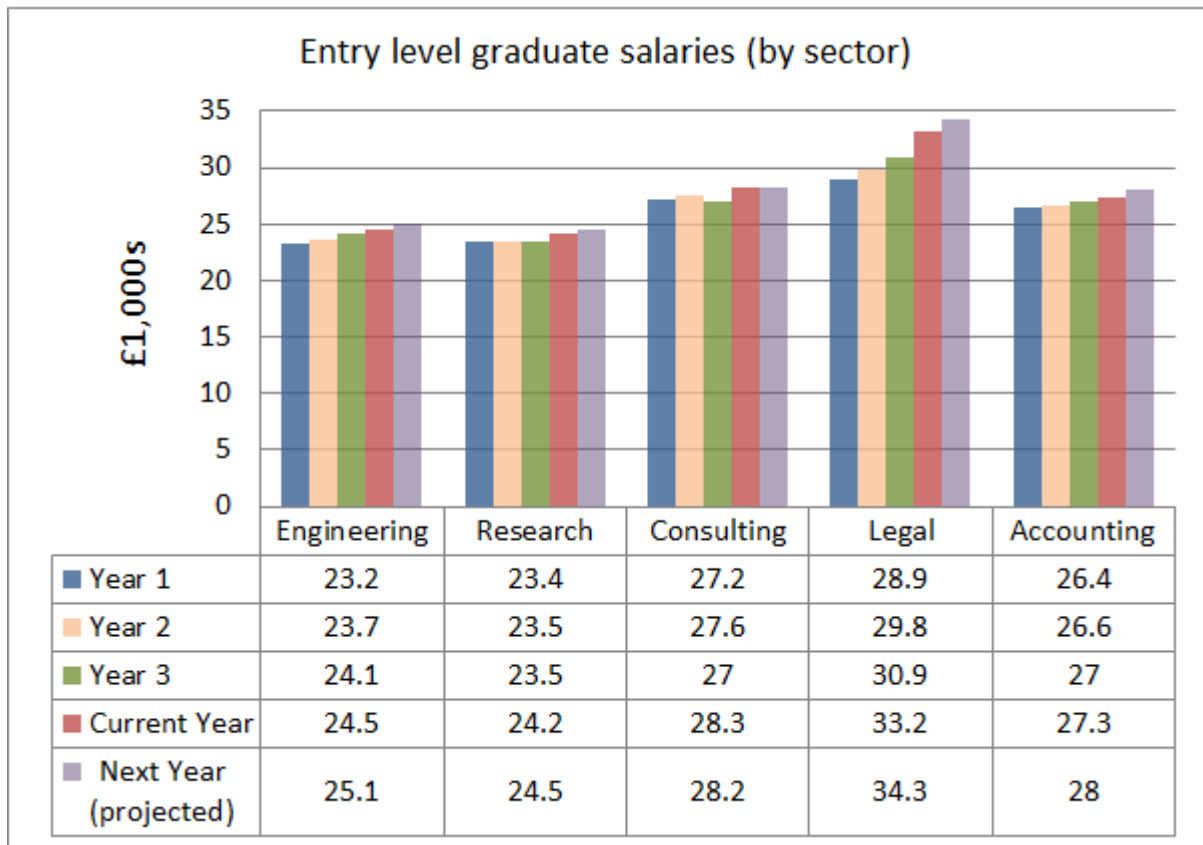
*Thus the answer is (E) Can't tell from data.*

*Don't be tempted to do this:*

**Step 1** – Calculate the subsequent year's entry level graduate salary for each sector

**Step 2** – Calculate the average

**Step 3** – to the nearest £500 = £28,500



**Q22** In Year 3 a company paid the average entry graduate starting salaries when recruiting 15 graduates for a consultancy role and 6 graduates for a research role. What was the average salary per recruited graduate?

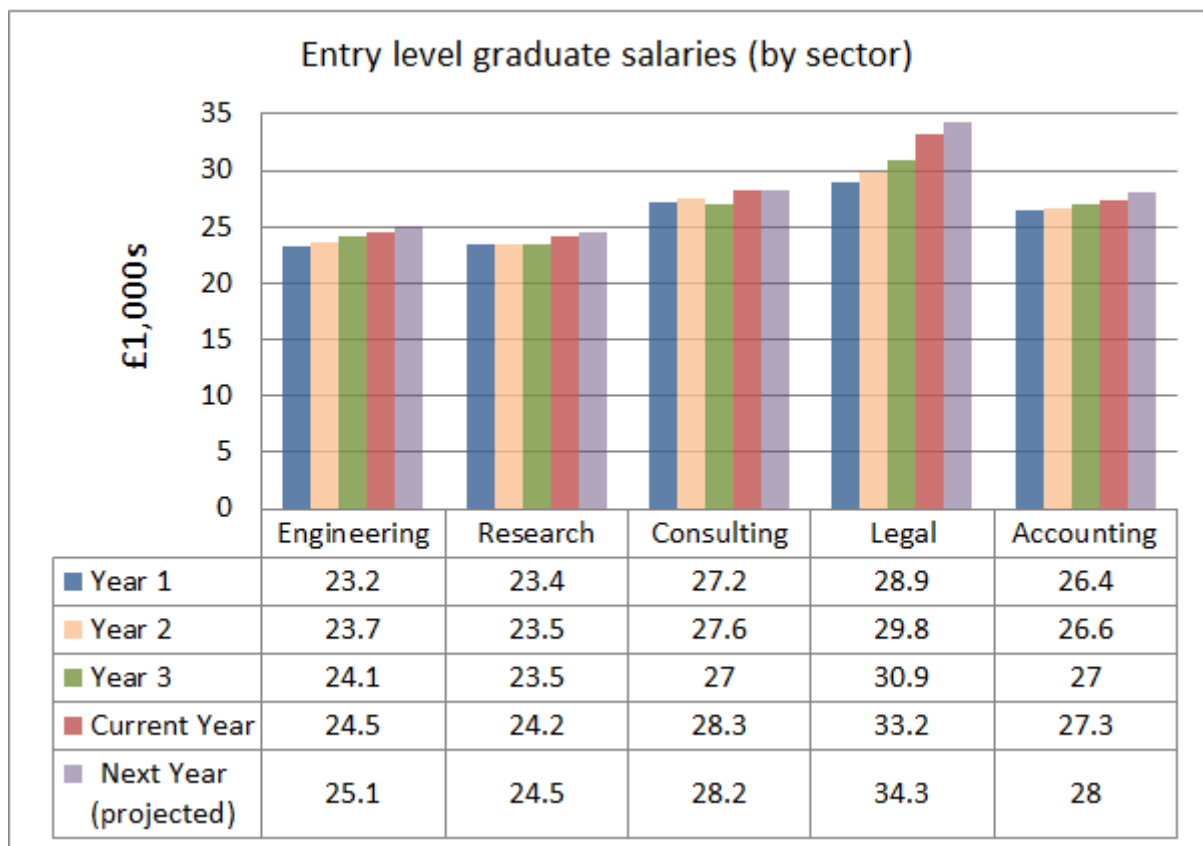
- (A) £26,000
- (B) £26,114
- (C) £26,429
- (D) £26,500
- (E) £27,000

**Step 1** – Total the salaries for 15 graduates (consultancy)  
 $15 \times 27,000 = 405,000$

**Step 2** – Total the salaries for 6 graduates (research)  
 $6 \times 23,500 = 141,000$

**Step 3** – Calculate the average salary per graduate  
 $(405,000 + 141,000) / 21 = £26,000$

Thus the correct answer is (A) £26,000



**Q23** Which sector has seen the smallest percentage increase in graduate entry level salary between Year 2 and the Current Year?

- (A) Engineering
- (B) Research
- (C) Consulting
- (D) Legal
- (E) Accounting

**Step 1** - Calculate the % increase for each sector

Engineering:  $(24.5 - 23.7)/23.7 = 3.4\%$

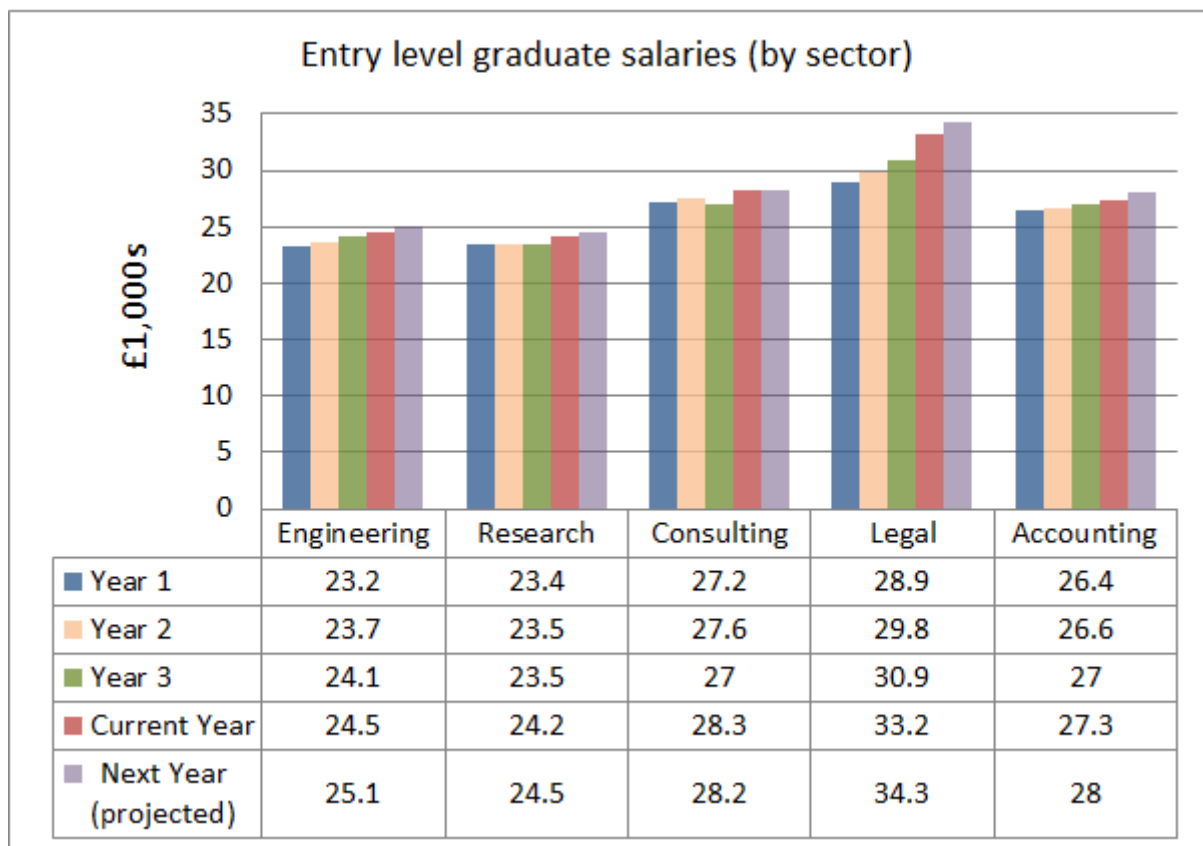
Research:  $(24.2 - 23.5)/23.5 = 3.0\%$

Consulting:  $(28.3 - 27.6)/27.6 = 2.5\%$

Legal:  $(33.2 - 29.8)/29.8 = 11.4\%$

Accounting:  $(27.3 - 26.6)/26.6 = 2.6\%$

Thus the correct answer is (C) Consulting



**Q24** The current year's entry level graduate salaries for working in logistics and retail are £25,000 and £24,000 respectively. If these sectors experience the same percentage change as the legal sector over the same period, what's next year's predicted entry level graduate salary in the logistics and retail sectors (to the nearest £100)?

- (A) £24,800 (logistics); £25,800 (retail)
- (B) £25,100 (logistics); £25,300 (retail)
- (C) £25,500 (logistics); £25,000 (retail)
- (D) £25,800 (logistics); £24,800 (retail)
- (E) Can't tell from data

**Step 1** – Calculate the % increase in legal sector salaries between the current year and next year

$$100\% \times (34.3 - 33.2)/33.2 = 3.31\%$$

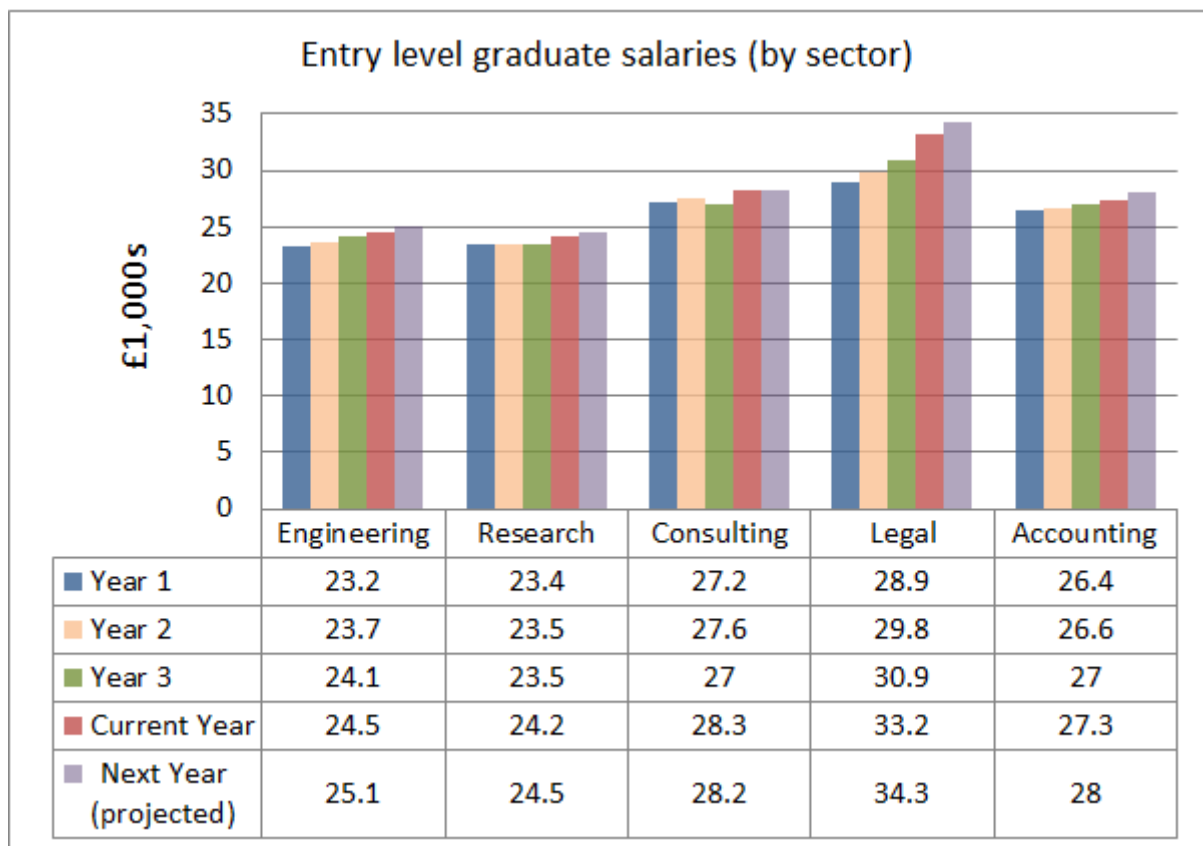
**Step 2** – Apply this % increase to the entry level graduate salaries (logistics)

$$103.31\% \times £25,000 = £25,828$$

**Step 3** – Apply this % increase to the entry level graduate salaries (retail)

$$103.31\% \times £24,000 = £24,794$$

Thus the correct answer is (D) £25,800 (logistics); £24,800 (retail)



**Q25** Which of the 5 sectors had the lowest difference in entry level graduate salary between Year 3 and the Current Year?

- (A) Engineering
- (B) Research
- (C) Consulting
- (D) Legal
- (E) Accounting

**Step 1** - Calculate the change for each sector

Engineering:  $24.5 - 24.1 = 0.4$

Research:  $24.2 - 23.5 = 0.7$

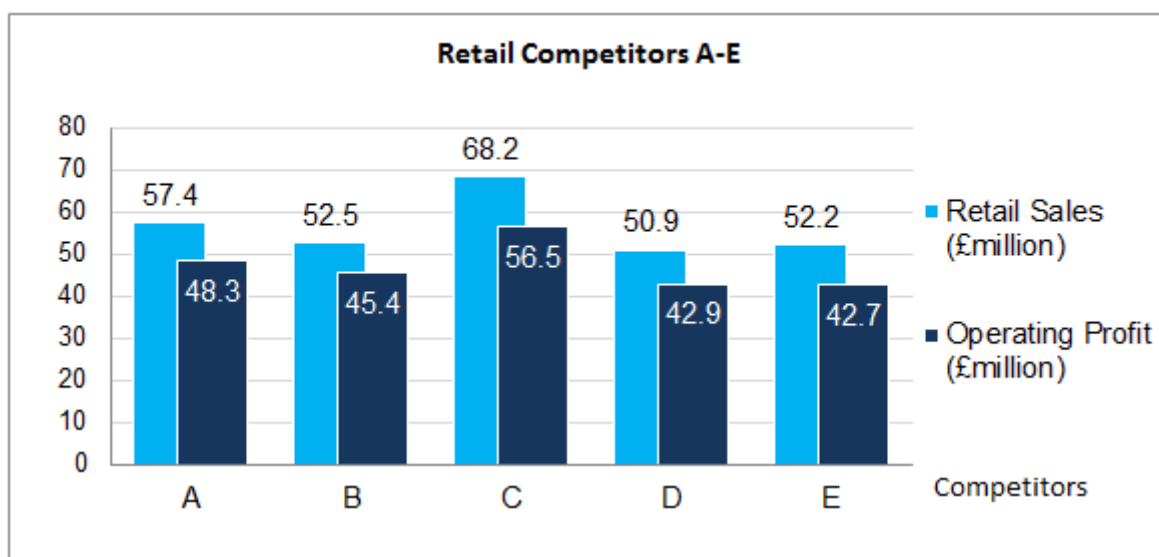
Consulting:  $28.3 - 27 = 1.3$

Legal:  $33.2 - 30.9 = 2.3$

Accounting:  $27.3 - 27 = 0.3$

**Note** - Because the question asks for 'difference' not percentage change, we must calculate the absolute difference. As it happens, if you had worked out the percentage change by mistake, you would still have arrived at (E) Accounting.

Thus the correct answer is (E) Accounting



Competitor					
	A	B	C	D	E
Staff (1,000s)	325	180	295	204	154
Monthly customers (millions)	4.2	2.2	4.5	3.1	2.2
Number of countries of operation	38	30	22	28	32

**Q26** Which competitor(s) has less than 100,000 customers per day (assume 30 days per month)?

- (A) All competitors
- (B) Competitor B
- (C) Competitor E
- (D) Competitors B and E
- (E) Competitors B, D and E

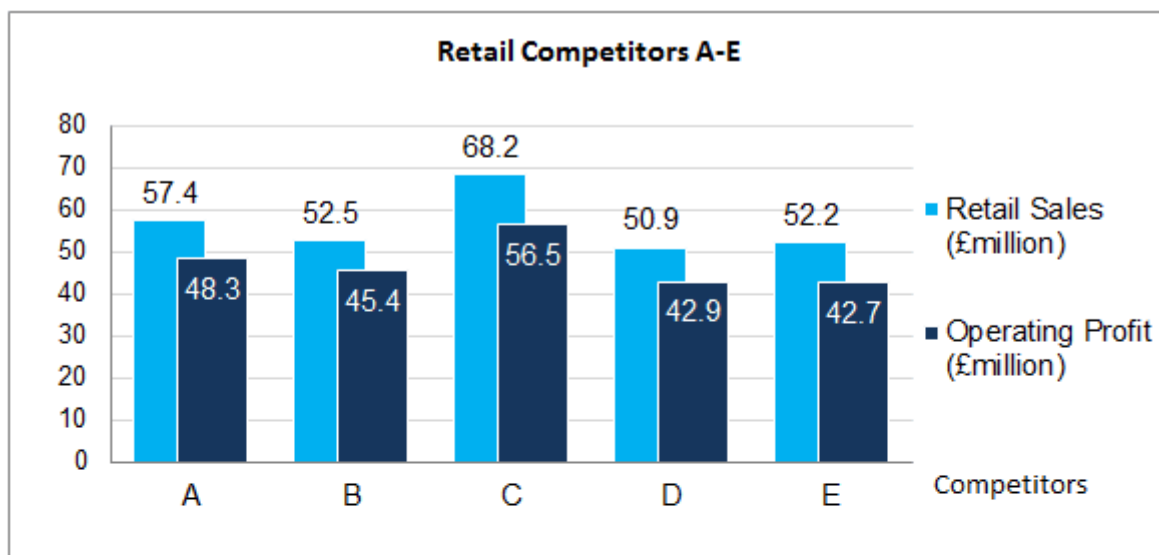
*The information that you need is shown in the table.*

**Step 1** – Calculate the number of daily customers for each competitor, as shown below:

Per month	4.2	2.2	4.5	3.1	2.2
Per day (millions)	$/30 = 0.14$	$/30 = 0.073$	$/30 = 0.15$	$/30 = 0.103$	$/30 = 0.073$

*These figures are in millions.*

*Thus the correct answer is (D) Competitors B and E*



Competitor					
	A	B	C	D	E
Staff (1,000s)	325	180	295	204	154
Monthly customers (millions)	4.2	2.2	4.5	3.1	2.2
Number of countries of operation	38	30	22	28	32

**Q27** Which Competitor has the lowest average number of staff per country of operation?

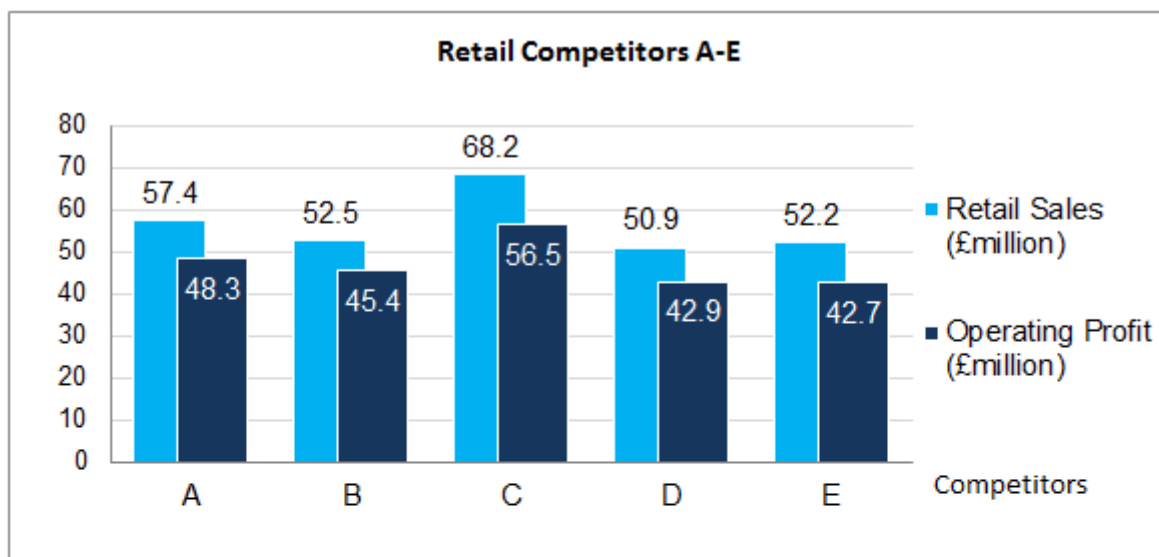
- (A) Competitor A
- (B) Competitor B
- (C) Competitor C
- (D) Competitor D
- (E) Competitor E

*The information that you need is shown in the table.*

**Step 1** - Calculate the average number of staff per country of operation for each Competitor, as shown below

	A	B	C	D	E
Staff / Countries of operation	325,000/38	180,000/30	295,000/22	204,000/28	154,000/32
	= 8,553	= 6,000	= 13,409	= 7,286	= 4,813

*Thus the correct answer is (E) Competitor E*



Competitor					
	A	B	C	D	E
Staff (1,000s)	325	180	295	204	154
Monthly customers (millions)	4.2	2.2	4.5	3.1	2.2
Number of countries of operation	38	30	22	28	32

**Q28** If Competitors B to E make up 85% of the business sector in which they operate (based upon operating profits), approximately what are the total operating profits of the other companies in the same business sector?

- (A) £3 million
- (B) £28 million
- (C) £33 million
- (D) £35 million
- (E) £221 million

*The information that you need is shown in the graph.*

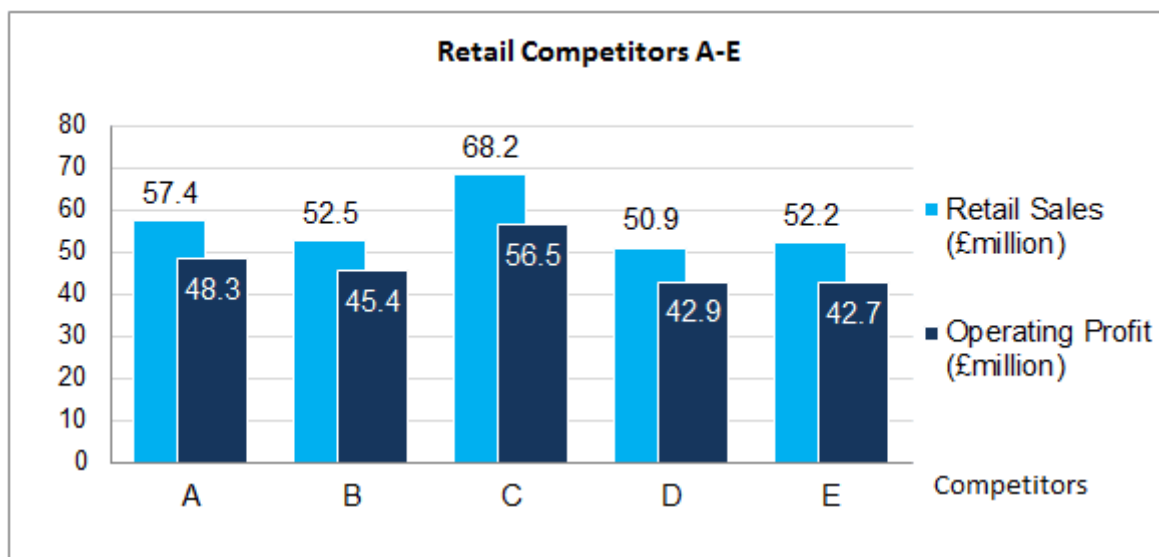
**Step 1** – Calculate the total operating profits for Competitors B to E  
 $45.4 + 56.5 + 42.9 + 42.7 = £187.5$  million

**Step 2** – Calculate operating profits for the entire sector  
 $187.5 \div 0.85 = 220.6$  million.

**Step 3** – Calculate other companies' operating profits  
 $220.6 \times 15\% = 33.09$  million = £33 million approx.

*Thus the correct answer is (C) £33 million*





Competitor					
	A	B	C	D	E
Staff (1,000s)	325	180	295	204	154
Monthly customers (millions)	4.2	2.2	4.5	3.1	2.2
Number of countries of operation	38	30	22	28	32

**Q29** Competitor B has an additional business that generates an additional 8% to the Retail Sales shown. Competitors A and C have additional businesses that generate 7% and 4% additional revenue respectively. What's the total of these additional sales streams for Competitors A, B and C combined (to the nearest £million)?

- (A) £9 million
- (B) £10 million
- (C) £11 million
- (D) £12 million
- (E) £13 million

*The information that you need is shown in the graph.*

**Step 1** – Calculate the additional sales for Competitor B  
 $52.5 \times 8\% = 4.20$

**Step 2** – Calculate the additional sales for Competitor A  
 $57.4 \times 7\% = 4.02$

**Step 3** – Calculate the additional sales for Competitor C  
 $68.2 \times 4\% = 2.73$

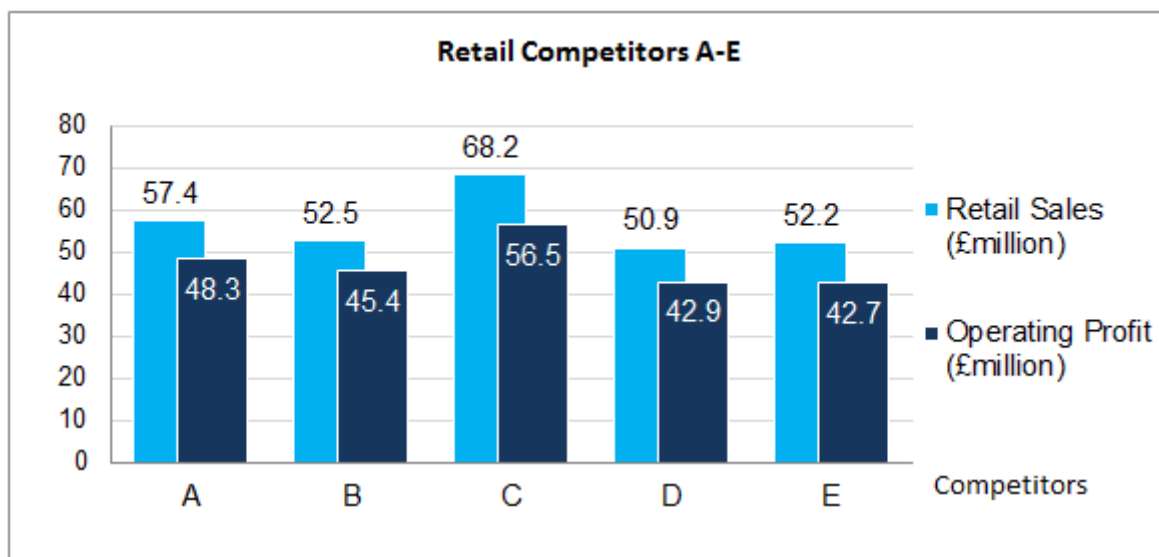
**Step 4** – Calculate the total sales

$$4.20 + 4.02 + 2.73 = 10.95$$

**Step 5** – To the nearest £million

$$10.95 = \text{£}11 \text{ million}$$

Thus the correct answer is (C) £11 million



Competitor					
	A	B	C	D	E
Staff (1,000s)	325	180	295	204	154
Monthly customers (millions)	4.2	2.2	4.5	3.1	2.2
Number of countries of operation	38	30	22	28	32

**Q30** Which two Competitors average the same approximate number of customers per country of operation?

- (A) Competitor A and Competitor D
- (B) Competitor B and Competitor D
- (C) Competitor A and Competitor C
- (D) Competitor B and Competitor E
- (E) No two competitors

*The information that you need is shown in the table.*

**Step 1** - Calculate the average number of customers per country of operation for each Competitor

$$\text{Competitor A} = 4.2/38 = 0.111$$

$$\text{Competitor B} = 2.2/30 = 0.073$$

$$\text{Competitor C} = 4.5/22 = 0.205$$

$$\text{Competitor D} = 3.1/28 = 0.111$$

$$\text{Competitor E} = 2.2/32 = 0.069$$

*Thus the correct answer is (A) Competitor A and Competitor D*

**-- End of Test --**