Numerical Reasoning
Free Test 2

Instructions

This practice test contains **5 questions**, and you will have **5 minutes** to answer them.

Each question will have four possible answers, one of which is correct.

Calculators are permitted for this test. It's recommended to have some rough paper for your calculations. 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.

Try to find a time and place where you will not be interrupted during the test. When you are ready, turn to the next page and begin.

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Company	Company Annual Profit (£)	Cost to Buy Company (£)	Number of Employees
A	20,000	18,000	5
B	26,000	25,000	8
C	21,000	20,000	8
D	30,000	30,000	18

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Q1 If the profits per employee remain the same, how many extra employees would Company B have to recruit to achieve annual profits of £39,000?
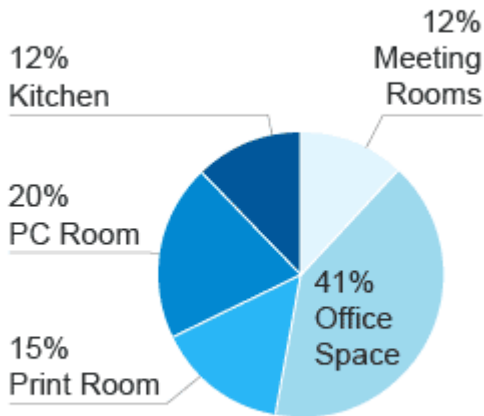
Answer: *(D) 4*

The information that we need is shown in the table Share Prices.

Step 1: *For company B, profit per employee is originally (£26,000 ÷ 8) = £3,250/employee. So £39,000 ÷ £3,250 = 12 employees, which is 4 more than they currently have.*

Tip: *Whilst each question can be done in isolation, it will help here if you can quickly locate the workings from the previous question.*
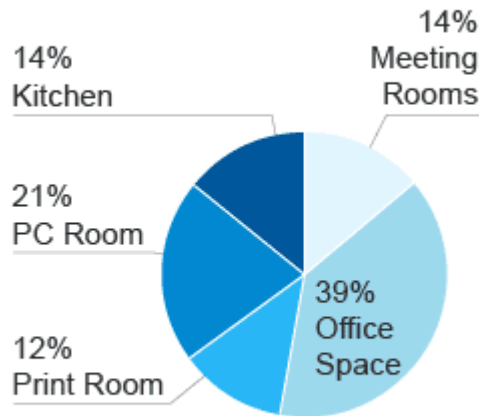
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Building Energy Use 1990
Total: 17,000 kWh

12% Kitchen
12% Meeting Rooms
20% PC Room
15% Print Room
41% Office Space

Building Energy Use 2000
Total: 15,000 kWh

14% Kitchen
14% Meeting Rooms
21% PC Room
12% Print Room
39% Office Space

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Q2 Which space experienced the smallest reduction in kWh used between 1990 and 2000?

Answer: *(D) PC Room*

Step 1: *Calculate the value of kWh for 1990 and 2000 for each of the rooms.*

Room	1990/ kWh	2000/ kWh
Meeting Rooms	2.04	2.10
Office Space	6.97	5.85
Print Room	2.55	1.80
PC Room	3.40	3.15
Kitchen	2.04	2.10

Step 2: *Subtract the kWh for 2000 from that of 1990 for each of the rooms.*

Room	Δ (1990 - 2000) kWh
Meeting Rooms	-0.06
Office Space	1.12
Print Room	0.75
PC Room	0.25
Kitchen	-0.06

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Step 3: *Look for the smallest positive value. Negative values represent an <u>increase</u> between 1990 and 2000.*

Tip: *You only need to perform 4 calculations, as town of the rooms have the same values.*

Sector	Male	Female
Voluntary Work	41,000	67,000
IT	121,000	107,000
Engineering	398,000	105,000
Legal Services	273,000	251,000
Healthcare	227,000	271,000
Business Services	186,000	124,000
Self-Employed	45,000	62,000
Unemployed	52,000	43,000
Total	**1,343,000**	**1,031,000**

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Q3 Approximately what percentage of the people sampled are unemployed?

Answer: (D) 4%

Step 1: *Make sure you add together the male and female figures to arrive at a figure for 'people'.*
Total number unemployed = 52,000 + 43,000 = 95,000.

Step 2: *Total number people sampled = 1,343,000 + 1,031,000 = 2,374,000.*

Step 3: *So now 95,000 ÷ 2,374,000 = 4%.*

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Town		Aug	Sept	Oct	Nov	Average Cost per Accident (£)
Ribley	Number of Accidents	8	6	12	10	1,900
	Vehicles on Road	85,000	76,000	79,000	81,000	
Wartop	Number of Accidents	14	18	4	20	3,200
	Vehicles on Road	112,000	101,000	89,000	117,000	
Surren	Number of Accidents	6	20	9	21	1,050
	Vehicles on Road	96,000	104,000	119,000	125,000	

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Q4 The only towns in the County are Ribley, Wartop and Surren. What was the average accident cost per vehicle on the road in September for the County?

Answer: *(B) £0.32*

Step 1: *We need to first find the total costs of all accidents for all towns: (£1,900 x 6) + (£3,200 x 18) + (£1,050 x 20) = £90,000.*

Step 2: *Now divide this by the total number of vehicles on the road for all three towns (76,000 + 101,000 + 104,000) = 281,000.*

Step 3: *So £90,000 ÷ 281,000 = £0.32.*

Tip: *Don't be fooled into working out the average accident cost per vehicle on road for all three towns, and then finding the average of these by summing and dividing by three. This is not the overall average, this would give a distorted average toward the town with the lowest number of accidents.*

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Energy Production
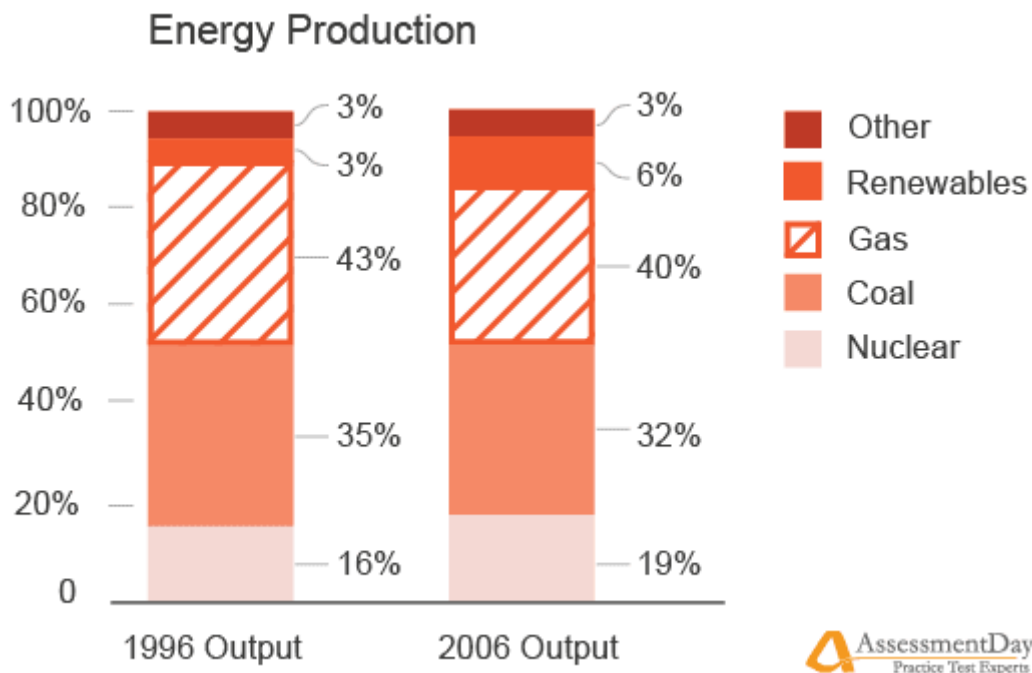
Q5 In 1996, total output from all fuels was 200TWh. If output for Nuclear in 2006 was twice that for Coal in 1996, what was the output for Nuclear in 2006?

Answer: *(A) 140TWh*

The information that we need is shown in the graph IT spending by the legal sector.

Step 1: *We are told that the total output from all fuels in 1996 is 200TWh, so we can work out what is was for coal in 1996.*
Coal in 1996 was 35% of 200TWh: 70TWh. So Nuclear in 2006 is twice this: 140TWh.

Tip: *If you read this quickly, it might be daunting. It needn't be if you take each step at a time.*

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End of test

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