

1. Key C Skill set: table reading, calculating mean.
 In weeks 1 + 2 + 3 the opening price is $24 + 34 + 30 = 88$.
 If the mean is 29, the value for the four weeks must be $29 \times 4 = 116$, so in Week 0 the opening price is $116 - 88 = 28p$
2. Key D Skill set: addition/subtraction, multiplication, table reading.
 The offer price on the W2 Mon is $34p + 2p = 36p$, so to buy 10,000 will cost $0.36 \times 10,000 = £3,600 + £22 \text{ charges} = £3,622$; the estimated bid price on W4 Mon is $36p - 2p = 34p$, so the investor will receive $0.34 \times 10,000 = £3,400 - £14 \text{ charges} = £3,386 = £236 \text{ loss}$
3. Key C Skill set: multiplication/division, table reading.
 Most cards may simply multiply the number of shares $\times 30p$ but the bid price on 1 Oct was $30p - 2p = 28p$ so the value of the company was in fact $100,000,000 \times 0.28 = 28,000,000$
4. Key E Skill set: addition/subtraction, multiplication, percentages, table reading.
 The value of the company changed from $(24 - 2 = 22) \times 100,000,000$ in W1 to $(32 - 2 = 30) \times 100,000,000$ on the Monday in W5 so the percentage change is $8/22 = 36\%$
5. Key B Skill set: table reading/ addition-subtraction.
 1907 travel times were Ilter Bridge - Ilter Downs $20 - 2 = 18$; Ilter Downs - Ilter Junction 14; Ilter Junction - Jadsey Park $26 - 2 = 24$; Jadsey Park - Kendleton = 14,
 So $18 + 14 + 24 + 14 = 70$ 2007 travel times were Ilter Bridge - Ilter Downs $29 - 2 = 27$; Ilter Downs - Ilter Junction 21; Ilter Junction - Jadsey Park $38 - 2 = 36$; Jadsey Park - Kendleton = 21, So $27 + 21 + 36 + 21 = 105$ – therefore difference is $105 - 70 = 35 \text{ mins}$
6. Key A Skill set: addition/subtraction, multiplication, table reading
 Farrsgate to Gerrenal took $12 - 2 = 10$ mins at 60 mph in 1907, so is a distance of 10 miles; takes $17 - 2 = 15$ mins to complete the 10 miles in 2007 = $10 \times 60/15 = 40\text{mph}$
7. Key D Skill set: multiplication/division, table reading
 In 1907 Ilter Road to Ilter Junction took $10 - 2 = 8$ mins at 60mph, so this is a distance of 8 miles.
 In 1907 Ilter Downs to Ilter Junction took 14 mins at 60mph, so this is a distance of 14 miles.
 Therefore the distance from Ilter Junction to Ilter Road is $14 - 8 = 6$ miles less than that to Ilter Downs.
8. Key D Skill set: addition/subtraction, multiplication, table reading
 In 1907 it took 14 minutes to travel at 60mph from Jadsey Park to Kendleton, so the journey is 14 miles. The single fare rate is 60p per mile. So a ticket costs $14 \times 0.6 = £8.40$. So the single fare from Kendleton to Jadsey Park is therefore £16.80. So the return fare is $(£8.40 + £16.80 = £25.20)$ less 10% $(£2.52) = £22.68$

9. Key C Skill set: table reading, addition/subtraction, division
 With 1\$ = 50 p in the US, the total expenditure at the NY store would be \$1200 + \$1400 + \$200 + \$208 + \$190 = \$3198, which is £1,599 in pounds.
 With £1 = 1.5 EURO in the Brussels store, the total expenditure there would cost 1100 + 1200 + 165 + 120 + 180 = 2765 Euros = £1843.3 so, rounded up, the total price would be £1844.
 Buying in New York would be cheaper, therefore, by 1844 - 1599 = £245
10. Key A Skill set: addition/subtraction, multiplication/division, table reading
 Taking account of currency conversion, discounts, etc, the respective 'deals' on offer are: NY £100; Brussels £110; UK Internet 120 x 0.5 = £60 + £100 = £160; Local shops 140 x 0.75 = £105;
 Wholesaler 145 x 0.8 = £116 - so NY is the answer
11. Key E Skill set: addition/subtraction, multiplication/division, table reading
 Taking account of currency conversion, discounts, etc, the respective 'deals' on offer are: NY £104; Brussels £80; Local shops 102 x 0.75 = £76.50; Wholesaler 101 x 0.8 = £80.80 - so the highest price is £104 and the lowest £76.50 and the difference between them is £104 - £76.50 = £27.50
12. Key D Skill set: addition/subtraction, multiplication, percentages, table reading
 Taking account of currency conversion, discounts, etc, the respective 'deals' on offer are: NY £700; Brussels £800; UK Internet (1200 x 0.5 = 600) + £100 = £700; Local shops 900 x 0.75 = £675 - so the highest price is £800 and the lowest £675 - expressing the difference between the highest and lowest as a % of the lowest price gives us - (800 - 675 = 125)/ 675 = 18.518%
13. Key C Skill set: money, multiplication/division, addition/subtraction, table reading
 Take away personal allowance - 37000 - 5035 = £31965. Tax at 10% on 2150 = £215. Tax at 22 % on (31965 - 2150) = 0.22 X 29815 = £6559.30.
 Total tax deducted = £215 + £6559.30 = £6774.30
14. Key D Skill set: money, multiplication/division, addition/subtraction, table reading
 His income tax for that year would have been:
 Deduct p.a. (37000 - 5225) = 31775.
 Tax at 10% on £2230 = £223
 Tax at 22% on £31775 - 2230 = £29545 X .22 = 6499.90
 Total income tax = 223 + 6499.90 = 6722.90
 With the performance bonus he receives an extra £4000, i.e £41000
 Deduct p.a. (41000 - 5225) = £35775
 This takes him into the higher rate band
 So tax at 10% on 2230 = £223
 Tax at 22% on (34600 - 2230) 32370 = £7121.40
 Tax at 40% on (35775 - 34600) = £470
 Total income tax = 223 + 7121.40 + 470 = £7814.40
 Increase in his tax is £7814.40 - 6722.90 = £1091.50
15. Key B Skill set: money, multiplication/division, addition/subtraction, table reading

Deduct p.a. $42000 - 5225 = 36775$;
 Income tax on first 2230 = £223
 Income tax at basic rate = 7121.40
 Income tax at higher rate $(42000-5225-34600) \times 0.4 = £870$
 Total annual income tax = £8214.40.40
 Therefore average monthly tax deduction = $8214.40/12 = £684.53$

16. Key B Skill set: money, multiplication/division, addition/subtraction, table reading
 Chris's taxes
 Deduct p.a. $7000 - 5225 = £1775$
 Tax at starting rate = $£1775 \times .10 = £177.50$
 Therefore pay after tax is deducted is £6822.50
 Donald's taxes
 His salary is under the personal allowance for people aged 65-74, therefore he pays no tax. Therefore difference in pay after tax is deducted is £177.50
17. Key C Skill set: speed/distance/time
 $(2/30 \times 60) + (10/50 \times 60) = 4 + 12 = 16$ minutes
18. Key D Skill set: speed/distance/time
 (in 1.5 hrs at 70 mph) $70 \times 1.5 = 105$ miles
 (in 30 minutes at 100 mph) 50 miles
 $105 + 50 = 155$ miles
19. Key D Skill set: speed/distance/time
 6 seconds uniform acceleration to 60 mph is equivalent to 6 seconds travel at 30 mph.
 In 6 seconds at 30 mph, car travels $30/3600 \times 6 = .05$ miles. For the rest of the lap (1.95 miles) car travels at 60 mph (i.e. 1 mile in 60 seconds) which takes $(1.95 \times 60 = 117)$ seconds. Total time for the lap is therefore $117 + 6 = 123$ seconds or 2 minutes and 3 seconds
20. Key B Skill set: speed/distance/time
 In 90 seconds at 180 mph (3 miles per minute) he travels 4.5 miles; in 10 minutes at 160 mph travels he 26.66 miles; in 4 minutes at 80 mph he travels 5.33 miles. Total mileage = $4.5 + 26.66 + 5.33 = 36.5$ miles. One lap is 2 miles therefore laps completed = 18.25
21. Key C Skill set: speed/distance/time
 $(30/100 \times 10.3) + (60/100 \times 5.8) = 3.09 + 3.48 = 6.57$ litres
22. Key E Skill set: table reading, multiplication/division, addition/subtraction
 Total distance travelled = $12 \times 5 \times 2 \times 25$ Km = 3000 km
 Diesel consumption = $3000/100 \times 9.7 = 291$ litres
 Petrol consumption = $3000/100 \times 10.3 = 309$ litres
 Difference = 18 litres (of fuel)
23. Key B Skill set: table-reading, multiplication/division
 For diesel car, fuel used = $180/100 \times 5.4 = 9.72$ litres. Cost $9.72 \times 1.10 = £10.69$
 For petrol car, fuel used = $180/100 \times 5.8 = 10.44$ litres, cost $10.44 \times 1.01 = £10.54$

Therefore use of petrol car costs $\pounds 10.69 - 10.54 = \pounds 0.15$ less

24. Key D Skill set: table-reading, multiplication/division

For diesel car, CO_2 emissions = $189 \times 590 = 111,510 \text{ gm/km}$.

For petrol car, CO_2 emissions = $177 \times 590 = 104,430 \text{ gm/km}$

Therefore petrol car produces $111,510 - 104,430 = 7080 \text{ gm/km}$ less

25. Key C Skill sets: addition, subtraction, multiplication/division

$2.55\text{ha} + 1.63\text{ha} - 0.15\text{ha} = 4.03\text{ha} \times \pounds 28 = \pounds 113$

26. Key E Skill sets: subtraction

$2.55\text{ha} - 0.2\text{ha} = 2.35\text{ha}$

27. Key D Skill sets: addition, subtraction, multiplication

Original payment 2005 = $4.03\text{ha} \times \pounds 30 = \pounds 120.90$

Original payment 2006 = $4.03\text{ha} \times \pounds 28 = \pounds 112.84$

Original payment 2007 = $4.03\text{ha} \times \pounds 26 = \pounds 104.78$

Original payment 2008 = $4.03\text{ha} \times \pounds 24 = \pounds 96.72$

Total original payments made in error = $\pounds 435.24$

Correct payment 2005 = $3.83\text{ha} \times \pounds 30 = \pounds 114.90$

Correct payment 2006 = $3.83\text{ha} \times \pounds 28 = \pounds 107.24$

Correct payment 2007 = $3.83\text{ha} \times \pounds 26 = \pounds 99.58$

Correct payment 2008 = $3.83\text{ha} \times \pounds 24 = \pounds 91.92$

Total correct payments made in error = $\pounds 413.64$

Amount to be repayed = $\pounds 435.24 - 413.64 = \pounds 21.6$ rounded up = $\pounds 22$

28. Key D Skill sets: addition; multiplication

$3.83\text{ha} \times \pounds 22 = \pounds 84.26$

$\pounds 84.26 \times .30 = \pounds 25.28$

$\pounds 84.26 + \pounds 25.28 = \pounds 109.54$ rounded up to $\pounds 110$

29. Key E Skill sets: reading and interpreting tables and graphs

Note the lowest quantity purchased is in July of Year 2

30. Key C Skill sets: reading table; addition; calculation of mean

Add purchases between April 1 and March 31, divide by 12.

$645 / 12 = 53.75 \text{ litres}$

Note there are two months when additional purchases are made but the calculation is of a monthly mean.

31. Key D

Cost of fuel increase March 31 - $\pounds 0.95 + 10\% (\pounds 0.095) = \pounds 1.045 \text{ per litre} = \pounds 1.05$

June 30 - $\pounds 1.05 + 10\% (\pounds 0.105) = \pounds 1.155 \text{ per litre} = \pounds 1.16$

September 30 - $\pounds 1.16 + 10\% (\pounds 0.116) = \pounds 1.276 \text{ per litre} = \pounds 1.28$

Therefore cost of fuel in final quarter of Year 1 = $\pounds 1.28 \text{ per litre}$

Total fuel purchased between October 1 and December 31 = $48 + 27 + 53 \text{ litres} = 128 \text{ litres}$

Total expenditure = 128litres x £1.28 = £163.84

32. Key B Skill sets: reading table; percentages; addition/subtraction; division

Cost of petrol = 63% of £230.00 = 144.90.

Amount of petrol purchased = 39+43+57 = 139 litres

Petrol expenditure divided by amount of petrol = 144.90/139 = 1.04p

33. Key A Skill set: Speed and units conversion

Time = 1000/480 or 625/300 = 2.083333 hours = 120 + 5 minutes. 125 minutes

34. Key B Skill set: Percentage

Old time = d/s New time = d/1.1s

Percentage change = (new time - old time / old time) x 100 = -9.1%. 9%

35. Key A Skill set: Percentage

125% of old price = £120 Old price = £120/1.25 = 96 . Increase = £120 - £96 = £24

36. Key C Skill set: speed

The Athens plane flies a distance of = 1500 km before the plane left London.

Time to meet = 900/900 = 1 hour

Distance travelled from London is = 400 km so nearest to Paris.

The local time will be 13:00 + 1 + 1 = 15:00

37. Key E Skill set: Money

186 / (7 + 24) = 6. So the total number is 6 + 12 = 18

38. Key A Skill set: Area/Money

40/2 x 24/1.5 = 20 x 16 = 320. 7 cent value is 2240 cents. 12 cent value is 3840 cents.

Difference is 1600 cents or €16.00

39. Key D Skill set: Area, Money

Superpage 80/2 x 48/1.5 = 40 x 32 = 12800 stamps

Value of the 12 cent stamps is 15360 cents

Ratio is 2240 : 15360 = 1:7 approximately

40. Key C Skill set: Money

63 = 9x7, 64 = 36+28 = 3x12+4x7, 66 = 24+42 = 2x12+6x7,

67 = 60+7 = 5x12+1x7

Taking off successive 12s from 65 never leaves a multiple of 7 (65, 53, 41, 29, 22, 15, 8, 1) and 65 is the largest such number