

1. Key D Skill set: addition/subtraction/division/percentages  
 $50\% \times \text{£}100 \text{ (sw)} + 75\% \times \text{£}600 \text{ (man)} + 100\% \times \text{£}900.00 = \text{£}50 + \text{£}450 + \text{£}900 = \text{£}1,400.00$
2. Key C Skill set: addition/subtraction/division  
 Hourly rate for the three workers is  $\text{£}300 + \text{£}300 + \text{£}200 = \text{£}800$ . If the total cost was  $\text{£}3,600$ , they must have been away from the office for  $3,600/800 = 4.5$  hrs
3. Key D Skill set: addition/subtraction, percentages  
 $\text{£}600 \times 100/115 = \text{£}521.739 = \text{£}522$
4. Key C Skill set: addition/subtraction, multiplication, decimals, percentages  
 $(600 \times \text{£}900 \times .45) + \text{£}20,000 = \text{£}243,000 + \text{£}20,000 = \text{£}263,000$
5. Key A Skill set: addition/subtraction/multiplication/percentages  
 $(50\% \times 10,000 = 5,000) + (70\% \times 5,000 = 3,500) + (40\% \times 20,000 = 8,000) + (30\% \times 15,000 = 4,500) = 21,000$
6. Key D Skill set: addition/subtraction/multiplication/divisions/percentages  
 Station Estate ticket sales = Weekly sales: Station Estate –  $50\% \times 10,000 = 5,000 \times \text{£}8 = \text{£}40,000$  Total sales -  $12,000 + (\text{Station Estate} - 50\% \times 10,000 = 5,000 \times \text{£}8 \text{ £}40,000) + (\text{Town Centre} - 70\% \times 5,000 = 3,500 \times \text{£}10 = \text{£}35,000) + (\text{Hermitage Estate} - 40\% \times 20,000 = 8,000 \times \text{£}5 = \text{£}40,000) + \text{Riverbank Gardens } 30\% \times 15,000 = 4,500 \times \text{£}4 = \text{£}18,000) = \text{£}145,000$  So Station Estate proportion of sales =  $40,000/145,000 = 27.58$  (rounded = 27.6%)
7. Key E Skill set: addition/subtraction/multiplication/divisions/percentages  
 Total weekly sales =  $(70\% \text{ of } 5,000 = 3,500) \times \text{£}10 = \text{£}35,000$  of which 30% is paid to the training programme –  $30\% \times 35,000 = \text{£}10,050$  – amounting to  $\text{£}10,050 \times 52$  in a full year =  $\text{£}546,000$
8. Key C Skill set: addition/subtraction/percentages  
 $(40\% \times 20,000 = 8,000) - (30\% \times 15,000 = 4,500) = 3,500$
9. Key D Skill set: multiplication  
 $15 \times 3 = 45$  litres per minute  $\times 60$  minutes =  $2,700 \times 4 = 10,800$
10. Key A Skill set: reading table; area of squares and area of circles; subtraction  
 Note: 4 pumps with  $90^\circ$  rotation = circle Area of square =  $80 \times 80 = 6400 \text{ m}^2$  Area of circle =  $40 \times 40 \times 3.14 = 5024 \text{ m}^2$   $6,400 - 5,024 = 1,376 =$  approx 1,370

11. Key C Skill set: reading table; area of quadrant; subtraction  
 At 3° elevation range is 80 m (radius).(read from table) at 7° elevation range is 120 m Area covered at 3° is  $80 \times 80 \times 3.14 \div 4 = 5024$  Area covered at 7° is  $120 \times 120 \times 3.14 \div 4 = 11,304 \sim 11,300$   $11,304 - 5024 = 6280$
12. Key A Skill set: reading a table, calculation of a mean.  
 $20+40+60+80+95+110+115+120 = 640/8 = 80$ . Elevation giving 80 m range = 3°
13. Key D Skill set: reading a table, calculation of ratio, division  
 Divide 650 into 9,750 = ratio of 15:1.
14. Key B Skill set: reading a table, calculation of a mean  
 Remember to calculate annuity and not investment. Don't include all 7 figures. Mean = total/5 =  $1,350+1,200+1,500+650+600 = \pounds 5,300/5 = \pounds 1,060$
15. Key C Skill set: reading a table, division  
 Note: 'whole acres' and 'some'. Don't count the entire investment. Round up: 'min. number of whole acres'.  $2,500/3.75 = 666.67 = 667$  ac.
16. Key C Skill set: reading a table, subtraction, division  
 Be careful to take the untaxed £5,000 off the portion before doing the calculation. (Abbas)  $20,000-5000 = 15000/100 = 150$ .  $1875/150 = 12.5$
17. Key B Skill set: interpreting data, multiplication/division  
 $50 \times 20 \times 150/1000 = 150$  litres
18. Key D Skill set: interpreting data, multiplication  
 $4200 \times 10 \times 40 = 1,680,000$
19. Key B Skill set: interpreting data, multiplication/division  
 $90 \times 1 \times 4200/3600000 = 0.105$
20. Key E Skill set: interpreting data,  
 $[(50-10) \times 4200 \times 40 - (40 - 10) \times 4200 \times 30] \times 7 = [6,720,000 - 3,780,000] \times 7 = 2,940,000 \times 7 = 20,580,000$
21. Key A Skill set: reading a table, multiplication/division  
 $88/59 = 1.49$
22. Key D Skill set: reading a table, multiplication/division  
 $365/226 = 1.6$

23. Key B Skill set: reading a table, interpreting data, addition/subtraction  
 Venus is between the Sun and the Earth, therefore when Venus is at its furthest from the Sun and Earth is at its nearest to the Sun, we can estimate how close they are. The assumption about the orbital planes being the same is necessary for the estimation.  
 $146 - 109 = 37$
24. Key C Skill set: reading a table  
 1 Martian day = 1 Earth day; 365
25. Key B Skill set: ratio/proportion, multiplication/division, fractions  
 Enlargement factor is  $1 \frac{1}{3}$ ; so  $1 \frac{1}{3} \times 2 \frac{2}{3} = 3 \frac{5}{9}$
26. Key D Skill set: area/proportion, multiplication/division  
 $32 \times 12/8 \times 12/8 = 72$
27. Key E Skill set: large numbers, powers, area, multiplication/division  
 $(3.2 \times 10^6/4 \times 3) \times (6 \times 4.5) = 7.2 \times 10^6$
28. Key B Skill set: spatial recognition, abstraction, area, multiplication/division, addition/subtraction  
 $LW - (L - 2)(W - 2) = 40$   
 $2L + 2W = 44$   
 $L + W = 22$
29. Key D Skill set: reading from a table, addition/subtraction  
 $22 + 40 + 28 = 90$
30. Key C Skill set: reading from a table, addition/subtraction, money  
 Journey = 132 miles  
 $40p \times 80 = 3200p$ ;  $30p \times 52 = 1560p$   
 $3200p + 1560p = 4760$
31. Key A Skill set: multiplication/division, addition/subtraction, money  
 $40p \times 80 = \text{£}32$   $\text{£}3/30p = 10$   
 Total distance = 90 miles  
 Towns are 45 miles apart
32. Key C Skill set: percentage, multiplication/division, money  
 $\text{£}940 - \text{£}500 = \text{£}440$   
 Sales =  $\text{£}(440/2) \times 100 = \text{£}22,000$
33. Key B Skill set: reading a table, addition/subtraction  
 2002:  $19 + 19 + 17 = 55$   
 2009:  $17 + 24 + 15 = 56$   
 $56 - 55 = 1$
34. Key B Skill set: reading a table, percentages, multiplication/division  
 $45/100 \times 1200 = 540$   
 $55/100 \times 1000 = 550$   
 $550 - 540 = 1090$

35. Key B      reading a table, percentage, multiplication/division  
60/100 x 1100 = 660 girls + 40 passed  
700 girls passed:  $700 = 56/100 \times X$   
 $X = 100 \times 700/56$   
 $X = 1250$

36. Key B      Skill set: reading a table, ratio, percentage, multiplication/division  
30% of 120 = 36  
38% of 100 = 38  
 $36/38 = 18/19$