**INDICES – REVISION**

Simplify each of the calculations:

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 3x5  4x3 | 2 | p10  p6 |
| 3 | 9t5  5t4 | 4 |  |
| 5 | 8x2  x3 | 6 | 3p4 5p4 |
| 7 |  | 8 |  |
| 9 | (2x2)5 | 10 | (x2)3  (x5)2 |
| 11 | (p4)5 | 12 |  |
| 13 | 3p 8p2 | 14 | (4x2)3 |
| 15 |  | 16 | (9x3)2 |
| 17 | (4y)3 | 18 | 4m3  4m3 |
| 19 | (3y3)4 | 20 |  |
| 21 | 5y2  6y2 | 22 | y4  (2y)3 |
| 23 | (x3y4)3 | 24 | (3x2)3 2x4 |
| 25 |  | 26 |  |
| 27 | 5x210x | 28 | (3y)2 (2y2)2 |
| 29 | k5 × k−3 | 30 | q−4 × q6 |
| 31 | t−5 × t9 | 32 | w2 × w−4 |
| 33 |  | 34 |  |
| 35 |  | 36 |  |

ANSWERS

1. 12x8 2. p4 3. 45t9 4. x4 5. 8x5 6. 15p8  
7. 10t3 8. 4m3 9. 32x10 10. x16 11. p20 12. 2y3  
13. 24p3 14. 64x6 15. 2t2 16. 81x6 17. 64y3 18. 16m6  
19. 81y12 20. 6/5x5 21. 30y4 22. 8y7 23. x9y12 24. 54x10  
25. p2/64 26. 1 27. 1/2x 28. 36y6 29. k2 30. q2  
31. t4 32. w-2 = 1/w2 33. 3√x5 34. 4√a 35. c2/3 36. 1/5√w4

**SURDS – REVISION**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | √12 + √75 | 2 | √54 - √24 |
| 3 | √98 - √50 | 4 | √45 + √5 |
| 5 | √7  √7 | 6 | (3√3)2 |
| 7 | 4√3 + 5√3 | 8 | √2 × √32 |
| 9 | 4√6  3√2 | 10 | 6√5 3√10 |
| 11 | 5√8  4√6 | 12 | (4√2)3 |
| 13 | 3√24  2√2 | 14 | 2√7  3√7 |
| 15 |  | 16 |  |
| 17 |  | 18 |  |
| 19 | √5(3 − √5) | 20 | (√7 + 1)2 |

ANSWERS

1. 7√3 2. √6 3. 2√2 4. 4√5 5. 7 6. 9x3 = 27  
7. 9√3 8. √64 = 8 9. 12√12 = 12 x 2√3 = 24√3 10. 18√50 = 18 x 5√2 = 90√2  
11. 20√48 = 20 x 4√3 = 80√3 12. 64√8 = 64 x 2√2 = 128√2 13. 6√48 = 6 x 4√3 = 24√3  
14. 6√49 = 6 x 7 = 42 15. √2 16. 5 17. √2 18. √10/5  
19. 3√5 – 5 20. 7 +2√7 + 1 = 8 + 2√7

**EXAM QUESTIONS**

1. Simplify: m3 x √m

2.



ANSWERS

1. m3 x m1/2 = m7/2 2. x = √50 = 5√2