



Name: _____

Date: _____

SECTION A

Work out the following.

1. Work out $64^{\frac{1}{2}}$ = 8 (1)
2. Work out $81^{\frac{1}{3}}$ = 9 (1)
3. Work out $125^{\frac{1}{3}}$ = 5 (1)
4. Work out $16^{\frac{1}{4}}$ = 2 (1)
5. Work out $49^{\frac{1}{2}}$ = 7 (1)
6. Work out $8^{\frac{1}{3}}$ = 2 (1)
7. Work out $64^{\frac{2}{3}}$ = 16 (1)
9. Work out $27^{\frac{2}{3}}$ = 9 (1)
10. Work out $81^{\frac{3}{4}}$ = 27 (1)
11. Work out $125^{\frac{2}{3}}$ = 25 (1)
12. Work out $32^{\frac{2}{5}}$ = 4 (1)
13. Work out $4^{-\frac{1}{2}}$ = $\frac{1}{2}$ (1)
14. Work out $25^{-\frac{1}{2}}$ = $\frac{1}{5}$ (1)
15. Work out $8^{-\frac{1}{3}}$ = $\frac{1}{2}$ (1)
16. Work out $27^{-\frac{1}{3}}$ = $\frac{1}{9}$ (1)
17. Work out $16^{-\frac{1}{2}}$ = $\frac{1}{4}$ (1)
18. Work out $81^{-\frac{1}{2}}$ = $\frac{1}{9}$ (1)
19. Work out $\left(\frac{1}{9}\right)^{-\frac{1}{2}}$ = 3 (1)
20. Work out $\left(\frac{1}{8}\right)^{-\frac{1}{3}}$ = 2 (1)

SECTION B

Work out the following.

21. Work out $\left(\frac{1}{16}\right)^{-\frac{3}{4}}$ = 8 (2)
22. Work out $\left(\frac{25}{16}\right)^{\frac{1}{2}}$ = $\frac{5}{4}$ (2)
23. Work out $\left(\frac{81}{16}\right)^{\frac{3}{4}}$ = $\frac{27}{8}$ (2)
24. Work out $\left(\frac{16}{81}\right)^{-\frac{1}{4}}$ = $\frac{3}{2}$ (2)

SECTION C

Answer the following questions.

25. A jacket costs £80.
It is reduced by 20%.
What is the sale price?
= £64 (2)
26. A phone costs £350.
Its price increases by 15%.
What is the new price?
= £402.50 (2)
27. A school has 800 students.
60% are girls.
25% of the girls play a musical instrument.
How many girls play a musical instrument?
= 120 (2)
28. A company employs 450 workers.
40% work in sales.
15% of the sales staff are managers.
How many sales managers are there?
= 27 (2)
29. A car worth £16,000 increases in value by 12%.
What is its new value?
= £17,920 (2)
30. Work out $125^{\frac{1}{3}} - \left(\frac{1}{2}\right)^{-2}$ = $5 - 4 = 1$ (3)
31. Work out $\frac{64^{\frac{1}{3}} + 8^{\frac{2}{3}}}{2^{-1}}$ = 8 (4)
32. Work out $\frac{\left(1\frac{7}{9}\right)^{-\frac{1}{3}} \times \left(2\frac{2}{3}\right)}{2^{-3}}$ = 64 (4)
33. $2^{\frac{3}{2}} = \frac{2^n}{\sqrt{2}}$
Find n
 $n =$ 2 (3)
34. $2^x = \frac{2^n}{\sqrt{2}}$
 $2^y = (\sqrt{2})^7$
 $x + y = 10$
Find n
 $n =$ $-\frac{1}{2}$ (3)

