EduSahara™ Assignment

Name : Equations involving Base Powers

Chapter : Exponents and Powers

Grade : SSC Grade VIII

License : Non Commercial Use

1. If $3^{p}=81$, find $p$

   (i) 1 (ii) 3 (iii) 7 (iv) 5 (v) 4

2. If $2^{f}=4$, find $4^{f}$

   (i) 14 (ii) 19 (iii) 17 (iv) 15 (v) 16

3. If $4^{(11x+3)}=16^{(5x+4)}$, find x

   (i) 4 (ii) 2 (iii) 6 (iv) 5 (v) 7

4. If $27^{3f}=729^{(f+1)}$, find $f$

   (i) 2 (ii) 1 (iii) (-1) (iv) 3 (v) 4

5. If $25^{(e+7)}=625^{16}=5^{f}$, find $f$

   (i) 66 (ii) 64 (iii) 63 (iv) 61 (v) 65

6. If $3^{h}=9$, find $3^{(h+3)}$

   (i) 242 (ii) 241 (iii) 243 (iv) 244 (v) 246

7. If $\left(9^{2}\right)^{960}=\left(9^{4}\right)^{b}$, find $b$

   (i) 478 (ii) 479 (iii) 482 (iv) 481 (v) 480

8. If $125\times 5^{h}=5^{8}$, find $h$

   (i) 8 (ii) 6 (iii) 5 (iv) 3 (v) 4

9. If $10^{(2n+4)}\div 10000=10^{6}$, find $n$

   (i) 2 (ii) 6 (iii) 4 (iv) 0 (v) 3

10. Which of the following statements are true?

a) $a^0 = 1 \ (a \neq 0)$

b) $a^m . a^n = a^{mn}$

c) $\left(x^m\right)^n = \left(x^n\right)^m$

d) $a . x^m = a^m . x^m$

e) $\frac{x^m}{x^n} = x^{\frac{m}{n}}$

f) $\left(x^m\right)^n = x^{(m+n)}$

(i) {e,f,a} (ii) {d,c} (iii) {b,c,a} (iv) {b,a} (v) {a,c}

11. If $i^u = j$ , $j^v = k$ and $k^w = i$ , then $uvw =$

(i) -1 (ii) 1 (iii) 0 (iv) $ijk$ (v) $(i+j+k)$

12. If $j^u = k^v = l^w = m^x$ and $jk = lm$ , then

(i) $\frac{1}{v} + \frac{1}{w} = \frac{1}{u} + \frac{1}{x}$ (ii) $\frac{1}{v} + \frac{1}{x} = \frac{1}{w} + \frac{1}{u}$ (iii) $vu = wx$ (iv) $vw = ux$ (v) $\frac{1}{v} + \frac{1}{u} = \frac{1}{w} + \frac{1}{x}$

13. If $d^{(u-1)} = ef$, $e^{(v-1)} = fd$, $f^{(w-1)} = de$ then

a) $uv + vw + wu = 0$
b) $uvw = 1$
c) $(u+v+w) = 1$
d) $uv + vw + wu = uvw$
e) $uv + vw + wu = 1$

(i) {c,e,d} (ii) {a,d} (iii) {b,d} (iv) {d}

14. Simplify $\left(\frac{v^e}{v^f}\right)^{(e+f)} \left(\frac{v^f}{v^g}\right)^{(f+g)} \left(\frac{v^g}{v^e}\right)^{(g+e)}$

(i) 1 (ii) $v^{(e+f+g)}$ (iii) 0 (iv) -1 (v) $v$

15. Simplify $\left(w^c\right)^{(d-e)} \left(w^d\right)^{(e-c)} \left(w^e\right)^{(c-d)}$

(i) $w$ (ii) -1 (iii) $w^{(c+d+e)}$ (iv) 1 (v) 0

16. Simplify $\left(u^{(m+n)}\right)^{(m-n)} \left(u^{(n+o)}\right)^{(n-o)} \left(u^{(o+m)}\right)^{(o-m)}$

(i) 1 (ii) 0 (iii) $u^{(m+n+o)}$ (iv) -1 (v) $u$

17. Simplify $\left(\frac{s^d}{s^e}\right)^f \left(\frac{s^e}{s^f}\right)^d \left(\frac{s^f}{s^d}\right)^e$

(i) $s^{(d+e+f)}$ (ii) $s$ (iii) 1 (iv) -1 (v) 0

18. Simplify $\left(\frac{4^b . 25^{(b-1)} . 36^{(b-5)}}{16^{(b-1)} . 5^{(b-5)} . 6^{(b-5)}}\right)$

(i) $4^{(-b+2)} . 5^{(-b+9)} . 6^{(-b+5)}$ (ii) $4^1 . 5^4 . 6^0$ (iii) $4^{(-b+2)} . 5^{(b+3)} . 6^{(b-5)}$

(iv) $4^{(b+1)} . 5^{(-b+9)} . 6^{(-b+5)}$

19. $\left(c^9 + d^9\right)^0 =$

(i) $c^9 + d^9$ (ii) 0 (iii) 1 (iv) 4 (v) (-2)

## Assignment Key

| | | | | | |
|---|---|---|---|---|---|
| 1) (v) | 2) (v) | 3) (iv) | 4) (i) | 5) (ii) | 6) (iii) |
| 7) (v) | 8) (iii) | 9) (v) | 10) (v) | 11) (ii) | 12) (v) |
| 13) (iv) | 14) (i) | 15) (iv) | 16) (i) | 17) (iii) | 18) (iii) |
| 19) (iii) | | | | | |

Copyright © Small Systems Computing Pvt. Ltd.