EduSahara™ Learning Center Assignment

Grade : Class VII, ICSE
Chapter : Exponents
Name : Simplification of Base Power Expressions
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1. Simplify the expression $3^5 \times 3^5$

   (i) 5^{10} (ii) 3^{10} (iii) 3^{11}

   (iv) 3^9 (v) 3^7

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2. Simplify the expression $2^{-5} \times 2^{-5} \times 2^{-5}$

   (i) 2^{-16} (ii) 4^{-15} (iii) 2^{-15}

   (iv) 2^{-14} (v) $(-1)^{-15}$

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3. Simplify the expression $(-6)^7 \times (-6)^7 \times (-6)^7$

   (i) $(-6)^{22}$ (ii) $(-6)^{20}$ (iii) $(-3)^{21}$

   (iv) $(-6)^{21}$ (v) $(-8)^{21}$

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4. Simplify the expression $(-3)^{-4} \times (-3)^{-4}$

   (i) $(-1)^{-8}$ (ii) $(-3)^{-9}$ (iii) $(-3)^{-7}$

   (iv) $(-5)^{-8}$ (v) $(-3)^{-8}$

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5. Simplify the expression $\left(\frac{7}{2}\right)^5 \times \left(\frac{7}{2}\right)^5 \times \left(\frac{7}{2}\right)^5$

   (i) 15 (ii) 16 (iii) 15

$\left(\frac{5}{2}\right)$ $\left(\frac{7}{2}\right)$ $\left(\frac{7}{2}\right)$

(iv) $\left(\frac{9}{2}\right)^{15}$ (v) $\left(\frac{7}{2}\right)^{14}$

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6. Simplify the expression $\left(\frac{8}{3}\right)^{-6} \times \left(\frac{8}{3}\right)^{-6} \times \left(\frac{8}{3}\right)^{-6}$

(i) $\left(\frac{8}{3}\right)^{-17}$ (ii) $\left(\frac{8}{3}\right)^{-18}$ (iii) 2^{-18}

(iv) $\left(\frac{10}{3}\right)^{-18}$ (v) $\left(\frac{8}{3}\right)^{-19}$

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7. Simplify the expression $\left(\frac{-3}{5}\right)^{4} \times \left(\frac{-3}{5}\right)^{4} \times \left(\frac{-3}{5}\right)^{4}$

(i) $\left(\frac{-3}{5}\right)^{11}$ (ii) $\left(\frac{-3}{5}\right)^{13}$ (iii) $(-1)^{12}$

(iv) $\left(\frac{-1}{5}\right)^{12}$ (v) $\left(\frac{-3}{5}\right)^{12}$

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8. Simplify the expression $\left(\frac{-9}{8}\right)^{-9} \times \left(\frac{-9}{8}\right)^{-9}$

(i) $\left(\frac{-7}{8}\right)^{-18}$ (ii) $\left(\frac{-9}{8}\right)^{-17}$ (iii) $\left(\frac{-11}{8}\right)^{-18}$

(iv) $\left(\frac{-9}{8}\right)^{-19}$ (v) $\left(\frac{-9}{8}\right)^{-18}$

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9. Simplify the expression $8^{6} \times 8^{5}$

(i) 8^{10} (ii) 10^{11} (iii) 8^{12}

(iv) 5^{11} (v) 8^{11}

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10. Simplify the expression $6^{-2} \times 6^{-9}$

(i) 3^{-11} (ii) 6^{-10} (iii) 6^{-12}

(iv) 6^{-11} (v) 9^{-11}

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11. Simplify the expression $(-4)^{6} \times (-4)^{5}$

(i) $(-2)^{11}$ (ii) $(-7)^{11}$ (iii) $(-4)^{12}$

(iv) $(-4)^{11}$ (v) $(-4)^{10}$

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12. Simplify the expression $(-3)^{-5} \times (-3)^{-5} \times (-3)^{-9}$

(i) $(-3)^{-19}$ (ii) $(-3)^{-18}$ (iii) $(-3)^{-20}$

(iv) $(-5)^{-19}$ (v) $(-3)^{-17}$

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13. Simplify the expression $\left(\frac{5}{2}\right)^{5} \times \left(\frac{5}{2}\right)^{3} \times \left(\frac{5}{2}\right)^{5}$

(i) $\left(\frac{5}{2}\right)^{12}$ (ii) $\left(\frac{7}{2}\right)^{13}$ (iii) $\left(\frac{5}{2}\right)^{14}$

(iv) $\left(\frac{5}{2}\right)^{13}$ (v) $\left(\frac{3}{2}\right)^{13}$

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14. Simplify the expression $\left(\frac{5}{2}\right)^{-3} \times \left(\frac{5}{2}\right)^{-3} \times \left(\frac{5}{2}\right)^{-4}$

(i) $\left(\frac{3}{2}\right)^{-10}$ (ii) $\left(\frac{7}{2}\right)^{-10}$ (iii) $\left(\frac{5}{2}\right)^{-11}$

(iv) $\left(\frac{5}{2}\right)^{-10}$ (v) $\left(\frac{5}{2}\right)^{-9}$

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15. Simplify the expression $\left(\frac{-5}{6}\right)^{6} \times \left(\frac{-5}{6}\right)^{6} \times \left(\frac{-5}{6}\right)^{3}$

(i) $\left(\frac{-5}{6}\right)^{16}$ (ii) $\left(\frac{-7}{6}\right)^{15}$ (iii) $\left(\frac{-5}{6}\right)^{14}$

(iv) $\left(\frac{-5}{6}\right)^{15}$ (v) $\left(\frac{-1}{2}\right)^{15}$

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16. Simplify the expression $\left(\frac{-2}{9}\right)^{-7} \times \left(\frac{-2}{9}\right)^{-3} \times \left(\frac{-2}{9}\right)^{-2}$

(i) $\left(\frac{-4}{9}\right)^{-12}$ (ii) $\left(\frac{-2}{9}\right)^{-10}$ (iii) $\left(\frac{-2}{9}\right)^{-12}$

(iv) $\left(\frac{-2}{9}\right)^{-11}$ (v) $\left(\frac{-2}{9}\right)^{-13}$

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17. Simplify the expression $5^{8} \times 5^{8} \times 5^{8}$

(i) 125^{7} (ii) 125^{9} (iii) 125^{8}

(iv) 123^{8} (v) 127^{8}

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18. Simplify the expression $2^{-9} \times 6^{-9} \times 6^{-9}$

(i) 72^{-10} (ii) 72^{-8} (iii) 70^{-9}

(iv) 74^{-9} (v) 72^{-9}

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19. Simplify the expression $(-4)^{4} \times (-7)^{4}$

(i) 28^{5} (ii) 30^{4} (iii) 25^{4}

(iv) 28^{3} (v) 28^{4}

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20. Simplify the expression $(-6)^{-6} \times (-3)^{-6} \times (-7)^{-6}$

(i) $(-126)^{-7}$ (ii) $(-126)^{-6}$ (iii) $(-129)^{-6}$

(iv) $(-124)^{-6}$ (v) $(-126)^{-5}$

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21. Simplify the expression $\left(\frac{6}{5}\right)^{8} \times \left(\frac{5}{3}\right)^{8} \times \left(\frac{7}{4}\right)^{8}$

(i) $\left(\frac{7}{2}\right)^{7}$ (ii) $\left(\frac{7}{2}\right)^{8}$ (iii) $\left(\frac{5}{2}\right)^{8}$

(iv) $\left(\frac{9}{2}\right)^{8}$ (v) $\left(\frac{7}{2}\right)^{9}$

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22. Simplify the expression $\left(\frac{6}{5}\right)^{-5} \times \left(\frac{9}{8}\right)^{-5} \times \left(\frac{7}{2}\right)^{-5}$

(i) $\left(\frac{187}{40}\right)^{-5}$ (ii) $\left(\frac{189}{40}\right)^{-5}$ (iii) $\left(\frac{189}{40}\right)^{-4}$

(iv) $\left(\frac{189}{40}\right)^{-6}$ (v) $\left(\frac{191}{40}\right)^{-5}$

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23. Simplify the expression $\left(\frac{-7}{6}\right)^{8} \times \left(\frac{-3}{4}\right)^{8} \times \left(\frac{-3}{7}\right)^{8}$

(i) $\left(\frac{-1}{8}\right)^{8}$ (ii) $\left(\frac{-5}{8}\right)^{8}$ (iii) $\left(\frac{-3}{8}\right)^{8}$

(iv) $\left(\frac{-3}{8}\right)^{9}$ (v) $\left(\frac{-3}{8}\right)^{7}$

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24. Simplify the expression $\left(\frac{-7}{3}\right)^{-8} \times \left(\frac{-2}{7}\right)^{-8}$

(i) $\left(\frac{2}{3}\right)^{-8}$ (ii) $\left(\frac{2}{3}\right)^{-9}$ (iii) $\left(\frac{2}{3}\right)^{-7}$

(iv) $\left(\frac{4}{3}\right)^{-8}$ (v) $\left(\frac{2}{3}\right)^{-11}$

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25. Simplify $\frac{(-5)^{-2}}{4^{2}}$

(i) 20^{-1} (ii) 17^{-2} (iii) 20^{-2}

(iv) 20^{-3} (v) 23^{-2}

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26. Simplify $\dfrac{(-2)^{-2} \times (-4)^{-2}}{(-4)^{-2} \times 4^{-2}}$

(i) 2^{-1} (ii) 2 (iii) 2^{2}

(iv) 2^{3} (v) 4^{2}

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27. Simplify $\dfrac{(-4)^{2} \times (-3)^{2} \times (-4)^{-2}}{5^{-2} \times 4^{-2} \times 5^{2}}$

(i) 9^{2} (ii) 14^{2} (iii) 12

(iv) 12^{3} (v) 12^{2}

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28. Simplify $\dfrac{(-2)^{-2} \times (-4)^{-2} \times 3^{-2} \times (-3)^{-2}}{4^{-2} \times 4^{-2} \times 2^{2} \times (-5)^{-2}}$

(i) $\left(\frac{7}{9}\right)^{2}$ (ii) $\left(\frac{5}{9}\right)^{2}$ (iii) $\left(\frac{1}{3}\right)^{2}$

(iv) $\left(\frac{5}{9}\right)^{3}$ (v) $\frac{5}{9}$

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29. Simplify $\frac{2^{3} \times 4^{-2}}{2^{2} \times 2^{3}}$

(i) $(-1)^{-6}$ (ii) 2^{-6} (iii) 2^{-7}

(iv) 2^{-5} (v) 4^{-6}

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30. Simplify $\frac{3^{-3} \times 3^{3} \times (-5)^{3}}{(-4)^{2} \times (-2)^{2} \times (-2)^{2}}$

(i) $\frac{-1 \times 5^{3}}{5^{8}}$ (ii) $\frac{-2 \times 5^{3}}{2^{8}}$ (iii) $\frac{-1 \times 5^{4}}{2^{8}}$

(iv) $\frac{-1 \times 5^{3}}{2^{6}}$ (v) $\frac{-1 \times 5^{3}}{2^{8}}$

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31. Simplify $\frac{(-5)^{2} \times (-3)^{3} \times (-3)^{2}}{3^{3} \times 5^{3} \times 5^{2} \times (-4)^{3}}$

(i) $\frac{3^{5} \times 5^{2}}{2^{6} \times 3^{3} \times 5^{5}}$ (ii) $\frac{3^{5} \times 5^{2}}{2^{6} \times 5^{3} \times 5^{5}}$ (iii) $\frac{3^{5} \times 5^{2}}{2^{6} \times 3^{3} \times 2^{5}}$

(iv) $\frac{3^{6} \times 5^{2}}{2^{6} \times 3^{3} \times 5^{5}}$ (v) $\frac{3^{4} \times 5^{2}}{2^{6} \times 3^{3} \times 5^{5}}$

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32. Simplify $\frac{5^{-3} \times (-5)^{-3} \times 4^{-2} \times 2^{-2}}{\quad}$

$5^{-2} \times 2^{-2} \times 2^{-3}$

(i) $\frac{-1 \times 1}{2 \times 5^4}$ (ii) $\frac{-1 \times 0}{2 \times 5^4}$ (iii) $\frac{-1 \times 1}{4 \times 5^4}$

(iv) $\frac{-1 \times 1}{2^{-1} \times 5^4}$ (v) $\frac{(-1)^2 \times 1}{2 \times 5^4}$

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33. Find the reciprocal of 6^4

(i) $\left(\frac{1}{6}\right)^5$ (ii) $\left(\frac{1}{6}\right)^3$ (iii) $\left(\frac{1}{6}\right)^4$ (iv) $\left(\frac{-1}{6}\right)^4$ (v) $\left(\frac{1}{2}\right)^4$

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34. Find the reciprocal of $\left(\frac{-3}{7}\right)^2$

(i) $\left(\frac{-7}{3}\right)^2$ (ii) $\left(\frac{-7}{3}\right)$ (iii) $\left(\frac{-5}{3}\right)^2$ (iv) $\left(\frac{-7}{3}\right)^3$ (v) $(-3)^2$

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35. $\left(7^9 \times 2^6\right)^8 =$

(i) $7^9 \times 2^6$ (ii) $7^{48} \times 2^{72}$ (iii) $7^{72} \times 2^6$

(iv) $7^9 \times 2^{48}$ (v) $7^{72} \times 2^{48}$

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36. $\frac{\left(7^{(-2)}\right)^{-2} \times \left(8^5\right)^{-4} \times \left(10^3\right)^{-5}}{\left(7^4\right)^{-2} \times \left(8^3\right)^{-4} \times \left(10^6\right)^{-3}} =$

(i) $7^{13} \times 8^{(-8)} \times 10^{3}$ (ii) $7^{12} \times 8^{(-8)} \times 10^{4}$

(iii) $7^{12} \times 8^{(-8)} \times 10^{3}$ (iv) $7^{12} \times 8^{(-7)} \times 10^{3}$

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37. $\left[\left(6^{4} \right)^{6} \times \left(6^{4} \right)^{4} \right] \div 6^{40}$

(i) 6 (ii) 2 (iii) 0 (iv) 3 (v) 1

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38. $\left[\left(\frac{4}{3}\right)^{-2} \times \left(\frac{7}{5}\right)^{-2} \right] \div \left[\left(\frac{3}{4}\right)^{2} \times \left(\frac{5}{7}\right)^{2} \right] =$

(i) (-1) (ii) $\frac{7}{5}$ (iii) 0 (iv) $\frac{4}{3}$ (v) 1

Assignment Key

1) (ii)
2) (iii)
3) (iv)
4) (v)
5) (iii)
6) (ii)
7) (v)
8) (v)
9) (v)
10) (iv)
11) (iv)
12) (i)
13) (iv)
14) (iv)
15) (iv)
16) (iii)
17) (iii)
18) (v)
19) (v)
20) (ii)
21) (ii)
22) (ii)
23) (iii)
24) (i)
25) (iii)
26) (iii)
27) (v)
28) (ii)
29) (ii)
30) (v)
31) (i)
32) (i)
33) (iii)
34) (i)
35) (v)
36) (iii)
37) (v)
38) (v)