

Term 3 Review Part 3

June-01-17
11:04 AM

Mathematics 9 Term 3 Review Part 3

A. EXPONENTS

Evaluate the following.

$$\begin{aligned} 1. & 2^3 \times 2^2 \\ & = 2^{3+2} \\ & = 2^5 \\ & = \boxed{32} \end{aligned}$$

$$\begin{aligned} 2. & \left(\frac{2}{3}\right)^5 \times \left(\frac{2}{3}\right)^{-2} \\ & = \left(\frac{2}{3}\right)^{5+(-2)} \\ & = \left(\frac{2}{3}\right)^3 \\ & = \frac{2^3}{3^3} \\ & = \boxed{\frac{8}{27}} \end{aligned}$$

$$\begin{aligned} 3. & \frac{2^{-2}}{2^{-4}} \\ & = 2^{-2-(-4)} \\ & = 2^2 \\ & = \boxed{4} \end{aligned}$$

$$\begin{aligned} 4. & 5^0 \\ & = \boxed{1} \end{aligned}$$

$$\begin{aligned} 5. & -4^0 \\ & = \boxed{-1} \end{aligned}$$

$$\begin{aligned} \star 6. & 4^{-2} \\ & = \frac{1}{4^2} \\ & = \boxed{\frac{1}{16}} \end{aligned}$$

$$\begin{aligned} 7. & \left(\frac{2}{5}\right)^{-2} \\ & = \frac{2^{-2}}{5^{-2}} \\ & = \frac{5^2}{2^2} \\ & = \boxed{\frac{25}{4} \text{ or } 6\frac{1}{4}} \end{aligned}$$

$$\begin{aligned} 8. & (3^{-1})^3 \\ & = 3^{-1 \cdot 3} \\ & = \frac{1}{3^3} \\ & = \boxed{\frac{1}{27}} \end{aligned}$$

$$\begin{aligned} 9. & \left(\frac{2^3}{3}\right)^{-2} \\ & = \frac{2^{3 \cdot (-2)}}{3^{1 \cdot (-2)}} \\ & = \frac{2^{-6}}{3^{-2}} \\ & = \frac{3^2}{2^6} \\ & = \boxed{\frac{9}{64}} \end{aligned}$$

Simplify the following. Do not leave any negative exponents

$$10. (m^3)(m^2)(m^{-1})$$

$$= m^{3+2+(-1)}$$

$$= \boxed{m^4}$$

$$11. \frac{x^6 y^3}{x^2 y^{-1}}$$

$$= x^{6-2} y^{3-(-1)}$$

$$= \boxed{x^4 y^4}$$

$$12. (5xy^3)^2$$

$$= 5^{1 \cdot 2} x^{1 \cdot 2} y^{3 \cdot 2}$$

$$= 5^2 x^2 y^6$$

$$= \boxed{25x^2 y^6}$$

$$13. (a^2 b)(a^4 b^2)$$

$$= a^{2+4} b^{1+2}$$

$$= \boxed{a^6 b^3}$$

$$14. \frac{x^4 y^1}{x^2 y^{-5}}$$

$$= x^{4-2} y^{1-(-5)}$$

$$= \boxed{x^2 y^6}$$

$$15. \frac{(m^2 n)(m^3 n)}{(m^{-1} n)^2}$$

$$= \frac{m^{2+3} n^{1+1}}{m^{-1 \cdot 2} n^{1 \cdot 2}}$$

$$= \frac{m^5 n^2}{m^{-2} n^2}$$

$$= m^{5-(-2)} n^{2-2}$$

$$= m^7 n^0$$

$$= \boxed{m^7}$$

Evaluate following if $x = 2$ and $y = 3$.

$$16. (3x^2 y^{-1})(2xy^{-1})$$

$$= 6x^{2+1} y^{-1+(-1)}$$

$$= \frac{6x^3}{y^{-2}}$$

$$= \frac{6(2)^3}{(3)^{-2}}$$

$$= \frac{6(8)}{9} = \frac{48}{9} = \boxed{\frac{16}{3} \times 5\frac{1}{3}}$$

$$17. \frac{(12xy^{-1})}{(18x^{-2}y^1)}$$

$$= \frac{2x^{1-(-2)} y^{-1-1}}{3}$$

$$= \frac{2x^3 y^{-2}}{3}$$

$$= \frac{2x^3}{3y^2}$$

$$= \frac{2(2)^3}{3(3)^2}$$

$$= \frac{2(8)}{3(9)} = \boxed{\frac{16}{27}}$$

Assignment : Term 3 Review Part 3 Assignment

Name: _____

Term 3 Review Part 3 Assignment

A. Evaluate the following.

1. $(-2)^3 \times (-2)^3$

2. $\left(-\frac{1}{4}\right)^{-6} \times \left(-\frac{1}{4}\right)^9$

3. 5^{-2}

4. $(3^{-1})^3$

5. $\left(5^{-\frac{4}{5}}\right)^{\frac{5}{2}}$

6. $4^{-3} \times 4^{-2} \div 4^{-8}$

7. $6^{-5} \times 6^3$

8. $8^7 \div 8^7$

$$9. \left(\frac{3}{4}\right)^3 \times \left(\frac{3}{4}\right)^{-5}$$

$$10. \frac{2^{-2}}{2^{-6}}$$

$$11. -(3)^2(3)(3)^{-4}$$

$$12. \left(\frac{2^3}{3}\right)^{-2}$$

B. Simplify the following. Do not leave any negative exponents.

$$13. (x^2y)(x^3y)$$

$$14. \frac{m^5n^4}{mn^2}$$

$$15. (2x^3y)^3$$

$$16. (a^{-1}b^2)^{-3}$$

$$17. (m^4 n^6)^{\frac{1}{2}}$$

$$18. \left(\frac{x^3}{y^2}\right)^{-1}$$

$$19. (3m^{-1}n)^2$$

$$20. (x^2 y^{-2})(xy^{-3})$$

$$21. \frac{a^{-1}b}{a^{-3}b^4}$$

$$22. \left(\frac{3}{m^2}\right)^{-2}$$

$$23. \left(\frac{3x^{-1}}{y^2}\right)^{-2}$$

$$24. \frac{x^2 y^{-2}}{x^4 y^{-2}}$$

C. Evaluate following if $x = 2$ and $y = 3$.

25. $(x^2y^{-2})(xy^{-1})$

26. $(3x^2y^{-1})(2xy^{-1})$

27. $\frac{x^5y^4}{xy^3}$

28. $\frac{2x^{-1}y^2}{4xy^2}$

29. $(x^{-1}y)^2$

30. $(-5x^{-1}y^{-1})^2$

Answers

A. 1) 64

2) $-\frac{1}{64}$

3) $\frac{1}{25}$

4) $\frac{1}{27}$

5) 25

6) 64

7) $\frac{1}{36}$

8) 1

9) $\frac{16}{9}$

10) 16

11) $-\frac{1}{3}$

12) $\frac{9}{64}$

B. 13) x^5y^2

14) m^4n^2

15) $8x^9y^3$

16) $\frac{a^3}{b^6}$

17) $\frac{1}{m^2n^3}$

18) $\frac{y^2}{x^3}$

19) $\frac{9n^2}{m^2}$

20) $\frac{x^3}{y^5}$

21) $\frac{a^2}{b^3}$

22) $\frac{1}{m^3}$

23) $\frac{x^2}{9y^4}$

24) $\frac{1}{x^2}$

C. 25) $\frac{8}{27}$

26) $\frac{16}{3}$

27) 48

28) $\frac{1}{8}$

29) $\frac{9}{4}$

30) $\frac{25}{36}$