

10.1-10.2 Review

Simplify. Your answer should contain only positive exponents.

1)  $2u^3 \cdot 2u^{-1}v^0$   
 $2 \cdot 2 \cdot u^{3-1} v^0 = 4u^2$

3)  $y^{-1} \cdot 4xy^0$   
 $4y^{-1} = \frac{4}{y}$

5)  $4x^1 \cdot 2x^{-4}y^{-3}$   
 $4 \cdot 2x^{1-4}y^{-3} = 8x^{-3}y^{-3} = \frac{8}{x^3y^3}$

7)  $4x^2y^{\frac{3}{4}} \cdot 3yx^{\frac{5}{3}}$   
 $4 \cdot 3x^{2+\frac{5}{3}}y^{\frac{3}{4}+1} = 12x^{\frac{11}{3}}y^{\frac{7}{4}}$

9)  $(vu^{-2})^3$   
 $v^{1 \cdot 3} u^{-2 \cdot 3} = v^3 u^{-6} = \frac{v^3}{u^6}$

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

13)  $(3y^0)^4$   
 $3^4 y^{0 \cdot 4} = 81 y^0 = 81$

15)  $(x^{\frac{1}{3}}y^2)^2$   
 $x^{\frac{1}{3} \cdot 2} y^{2 \cdot 2} = x^{\frac{2}{3}}y^4$

17)  $(x^2 \cdot x^0y^3)^2$   
 $x^{2 \cdot 2} x^{0 \cdot 2} y^{3 \cdot 2} = x^4 y^6$

19)  $(x^4y^4)^3 \cdot (2x^4)^2$   
 $x^{4 \cdot 3} y^{4 \cdot 3} \cdot 2^4 x^{4 \cdot 2} = x^{12} y^{12} \cdot 16x^8 = 16x^{20}y^{12}$

21)  $ba^0 \cdot (2ab^2)^4$   
 $b \cdot 2^4 a^{1 \cdot 4} b^{2 \cdot 4} = b \cdot 16a^4 b^8 = 16a^4 b^{9}$

23)  $\left( \left( x^{\frac{3}{2}}y^{-2} \right)^{-\frac{1}{4}} \cdot x^{-1} \right)^{\frac{2}{3}}$   
 $\left( x^{\frac{3}{2} \cdot -\frac{1}{4}} y^{-2 \cdot -\frac{1}{4}} \cdot x^{-1} \right)^{\frac{2}{3}} = \left( x^{-\frac{3}{8}} y^{\frac{1}{2}} x^{-1} \right)^{\frac{2}{3}} = \left( x^{-\frac{11}{8}} y^{\frac{1}{2}} \right)^{\frac{2}{3}} = x^{-\frac{11}{12}} y^{\frac{1}{3}} = \frac{y^{\frac{1}{3}}}{x^{\frac{11}{12}}}$

2)  $4yx^3 \cdot x^{-1}y^{-4}$   
 $4y^{1-4}x^{3-1} = 4y^{-3}x^2 = \frac{4x^2}{y^3}$

4)  $3x^2y^3 \cdot 4yx^3$   
 $3 \cdot 4x^{2+3}y^{3+1} = 12x^5y^4$

6)  $4m^1 \cdot 3m^4y^0$   
 $4 \cdot 3m^{1+4} = 12m^5$

8)  $2x^{\frac{1}{4}} \cdot x^{\frac{5}{4}}y^{\frac{1}{2}}$   
 $2x^{\frac{1}{4}+\frac{5}{4}}y^{\frac{1}{2}} = 2x^{\frac{3}{2}}y^{\frac{1}{2}} = 2xy^{\frac{1}{2}}$

10)  $(3y^{-3})^3$   
 $3^3 y^{-3 \cdot 3} = 27y^{-9} = \frac{27}{y^9}$

12)  $(4y^3)^{-2}$   
 $4^{-2} y^{3 \cdot -2} = \frac{1}{16} y^{-6} = \frac{1}{16y^6}$

14)  $(2m^2)^4$   
 $2^4 m^{2 \cdot 4} = 16m^8$

16)  $v^{-\frac{3}{4}}$   
 $\frac{1}{v^{\frac{3}{4}}}$

18)  $(2x^2y^{-1} \cdot yx^0)^2$   
 $2^2 x^{2 \cdot 2} y^{-1 \cdot 2} y^{1 \cdot 2} x^{0 \cdot 2} = 4x^4 y^{-2} y^2 x^0 = 4x^4 y^0 = 4x^4$

20)  $b^{-2} \cdot (2a^2b^3)^4$   
 $b^{-2} \cdot 2^4 a^{2 \cdot 4} b^{3 \cdot 4} = \frac{1}{16} b^{-2} a^8 b^{12} = \frac{1}{16} b^{-2+12} a^8 = \frac{1}{16} b^{10} a^8$

22)  $x^3y^3 \cdot 2y^3 \cdot (x^{-1})^2$   
 $x^3 y^3 \cdot 2y^3 \cdot x^{-1 \cdot 2} = x^3 y^3 \cdot 2y^3 \cdot x^{-2} = 2x^{3-2} y^{3+3} = 2x^1 y^6 = 2xy^6$

24)  $x^{\frac{1}{3}}y^{\frac{3}{4}} \cdot \left( x^{\frac{1}{2}}y^{-2} \right)^2 \cdot x^{-2}y^{-2}$   
 $x^{\frac{1}{3}} y^{\frac{3}{4}} \cdot x^{-\frac{1}{2} \cdot 2} y^{-2 \cdot 2} \cdot x^{-2} y^{-2} = x^{\frac{1}{3}} y^{\frac{3}{4}} x^{-1} y^{-4} x^{-2} y^{-2} = x^{\frac{1}{3}-1-2} y^{\frac{3}{4}-4-2} = x^{-\frac{8}{3}} y^{-\frac{21}{4}} = \frac{1}{x^{\frac{8}{3}} y^{\frac{21}{4}}}$