U4/L4 HW p.236 7 8a,d 9c 12 15 p239 10c,f 11 12c,d

7. a) $(16x^6y^4)^{\frac{1}{2}}$

$= 4x^3y^2$

$= 4(2)^3(1)^2$

$= 32$

b) $\frac{(9p^{-2})^{\frac{1}{2}}}{6p^2}$

$= \frac{3p^{-1}}{6p^2}$

$= \frac{1}{2p^3}$

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

$= \frac{1}{54}$

c) $\frac{(81x^4y^6)^{\frac{1}{2}}}{8(x^9y^3)^{\frac{1}{3}}}$

$= \frac{9x^2y^3}{8x^3y}$

$= \frac{9y^2}{8x}$

$= \frac{9(5)^2}{8(10)}$

$= \frac{225}{80} = \frac{45}{16}$

d) $\left(\frac{(25a^4)^{-1}}{(7a^{-2}b)^2}\right)^{\frac{1}{2}}$

$= \frac{5^{-1}a^{-2}}{7a^{-2}b}$

$= \frac{1}{35b}$

$= \frac{1}{35(10)}$

$= \frac{1}{350}$

8. a) $(\sqrt{10000x})^{3/2}$

$= ((10000x)^{\frac{1}{2}})^{3/2}$

$= (10000x)^{3/4}$

$= 10^3x^{3/4}$

$= 1000(16)^{3/4}$

$= 1000(2)^3$

$= 8000$

b) $\left(\frac{(4x^3)^4}{(x^3)^6}\right)^{-0.5}$ ← Not assigned

$= \frac{(4x^3)^{-2}}{(x^3)^{-3}}$

$= \frac{(x^3)^3}{(4x^3)^2}$

$= \frac{x^9}{16x^6}$

$= \frac{x^3}{16}$

$= \frac{5^3}{16}$

$= \frac{125}{16}$

c) $(-2a^2b)^{-3}\sqrt{25a^4b^6}$

$= \frac{5a^2b^3}{(-2a^2b)^3}$

$= \frac{5a^2b^3}{-8a^6b^3}$

$= \frac{-5}{8a^4}$

$= -\frac{5}{8(1)^4}$

$= -\frac{5}{8}$

8. d) $\sqrt{\frac{(18m^{-5}n^2)(32m^2n)}{4mn^{-3}}}$

$= \left(\frac{9(16)m^{-3}n^3}{mn^{-3}}\right)^{\frac{1}{2}}$

$= (9(16)m^{-4}n^6)^{\frac{1}{2}}$

$= 3(4)m^{-2}n^3$

$= \frac{12n^3}{m^2}$

$= \frac{12(1)^3}{10^2}$ $\%$ $= \frac{12}{100}$ or $\frac{3}{25}$

12.

(i) $\frac{y^{-4}(x^2)^{-3}y^{-3}}{x^{-5}(y^{-4})^2}$

$= \frac{y^{-7}x^{-6}}{x^{-5}y^{-8}}$

$= x^{-1}y$

$= \frac{y}{x}$

$= -\frac{3}{2}$

(ii) $\frac{x^{-3}(y^{-1})^{-2}}{(x^{-5})(y^4)}$

$= \frac{x^2y^2}{y^4}$

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

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

$= \frac{4}{9}$ or $\frac{12}{27}$

(iii) $(y^{-5})(x^5)^{-2}(y^2)(x^{-3})^{-4}$

$= y^{-5}x^{-10}y^2x^{12}$

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

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

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

$= \frac{4}{27}$

∴ from least to greatest: (i), (iii), (ii)

15. $\dfrac{\sqrt{x(x^{2n+1})}}{\sqrt[3]{x^{3n}}}$

$= \dfrac{(x^{2n+2})^{1/2}}{(x^{3n})^{1/3}}$

$= \dfrac{x^{n+1}}{x^{n}}$

$= x^{1}$

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10. c) $\dfrac{\sqrt{x^2y^4}}{(x^{-2}y^3)^{-1}}$

$= \dfrac{xy^2}{x^2y^{-3}}$

$= \dfrac{y^5}{x}$

10. f) $\dfrac{\sqrt[6]{(8x^6)^2}}{\sqrt[4]{625x^8}}$

$= \dfrac{(8x^6)^{1/3}}{(625x^8)^{1/4}}$

$= \dfrac{2x^2}{5x^2}$

$= \dfrac{2}{5}$

11. a) $\left(\dfrac{b^3}{a^{5/2}}\right)^2\left(\dfrac{2a^4}{b^5}\right)$

$= \dfrac{b^6}{a^5} \cdot \dfrac{2a^4}{b^5}$

$= \dfrac{2b}{a}$

$= \dfrac{2(3)}{2}$

$= 3$

b) $\sqrt{\dfrac{9b^3(ab)^2}{(a^2b^3)^3}}$

$= \left(\dfrac{9b^3a^2b^2}{a^6b^9}\right)^{1/2}$

$= \left(\dfrac{9b^5a^2}{a^6b^9}\right)^{1/2}$

$= \left(\dfrac{9}{a^4b^4}\right)^{1/2}$

$= \dfrac{3}{a^2b^2}$

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

$= \dfrac{1}{12}$

12. a) $(a^{10+2p})(a^{-p-8})$

$= a^{p+2}$ ← Not assigned ↓

b) $(2x^2)^{3-2m}\left(\dfrac{1}{x}\right)^{2m}$

$= 2^{3-2m} \cdot x^{6-4m} \cdot x^{-2m}$

$= 2^{3-2m} \cdot x^{6-6m}$

c) $[(c)^{2n-3m}](c^3)^m \div (c^2)^n$

$= c^{2n-3m} \cdot c^{3m} \div c^{2n}$

$= c^{2n} \div c^{2n}$

$= 1$

d) $(x^{4n-m})\left(\dfrac{1}{x^3}\right)^{m+n}$

$= x^{4n-m} \cdot (x^{-3})^{m+n}$

$= x^{4n-m}\, x^{-3m-3n}$

$= x^{n-4m}$