Math3 (814013) – Spring 2007

Worksheet 11

Question (1) : Change from rational exponent form to radical form:

1) $x^{\frac{1}{5}}$

2) $(3x^2y^3)^{\frac{2}{7}}$

3) $t^{-\frac{2}{3}}$

4) $9^{\frac{1}{2}}$

5) $(-27)^{\frac{1}{3}}$

Question (2) : Change from radical form to rational exponent form.

1) $\sqrt[4]{x^3}$

2) $\sqrt[3]{5y}$

3) $\sqrt[7]{(3w)^5}$

4) $-\sqrt{4}$

5) $\sqrt[5]{x-3y}$

Question (3) : Evaluate the following:

1) $8^{-\frac{2}{3}}$

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

3) $0^{\frac{2}{5}}$

4) $-9^{\frac{1}{2}}$

5) $(-27)^{\frac{1}{3}}$

Question (4) : Simplify the following (using positive exponents only)

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

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

3) $x^{\frac{4}{3}} \cdot x^{\frac{2}{9}}$

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

5) $\left(\dfrac{8x^{\frac{1}{2}}}{x^{\frac{2}{3}}}\right)^{\frac{1}{3}}$

6) $\left(\dfrac{8a^{-4}b^3}{27a^2b^{-3}}\right)^{\frac{1}{3}}$

7) $2m^{\frac{1}{3}}\left(3m^{\frac{2}{3}}-m^6\right)$

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

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

10) $\left(a^{\frac{3}{n}} \cdot b^{\frac{3}{m}}\right)^{\frac{1}{3}}$

11) $\dfrac{2(3x-1)^{\frac{1}{3}}-(2x+1)\left(\frac{1}{3}\right)(x+2)^{\frac{-2}{3}}(3)}{(x+2)^{\frac{4}{3}}}$

12) $\sqrt[3]{x^2}\cdot x^{\frac{1}{2}}$

13) $\dfrac{\sqrt[3]{x^4}\cdot x^{\frac{2}{3}}}{\sqrt[4]{x^5}}$

14) $\dfrac{(2x-1)^{\frac{1}{2}}-(x+2)\left(\frac{1}{2}\right)(2x-1)^{\frac{-1}{2}}(2)}{(2x-1)}$

Question (5) : What is the difference between $\left(x^2\right)^{\frac{1}{2}}$ and $\left(x^{\frac{1}{2}}\right)^2$.

Question (6) : Answer by true or false.

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

2) $\left(x^3+y^3\right)^{\frac{1}{3}}\neq x+y$

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