MATH3 (814013) – SPRING 2007

WORKSHEET 10

Question (1): Simplify each of the following as much as possible:

1	$(3x^2)(5x^4)(4x^5)$	**2**	$\left(2x^4y^2z^{-3}\right)^2$
3	$\left(3u^{-3}v^2\right)^{-2}$	**4**	$\left(\dfrac{r^2s^3}{pq^4}\right)^5$
5	$\dfrac{10^{-9}\cdot 10^{-12}}{10^{-17}\cdot 10^5}$	**6**	$\left(\dfrac{w^{-2}}{w^{-4}}\right)^{-2}$
7	$\dfrac{6a^{-3}b^{-5}}{2a^{-7}b^{-2}}$	**8**	$\dfrac{20x^6y^{-2}z^4}{5x^3y^{-3}z^2}$
9	$\left(\dfrac{6mn^{-2}}{3m^{-1}n^2}\right)^{-3}$	**10**	$\left[\left(\dfrac{x^{-2}y^3t}{x^{-3}y^{-2}t^2}\right)^2\right]^{-1}$

PDF Created with deskPDF PDF Writer - Trial :: http://www.docudesk.com

Question (2): Simplify each of the following as much as possible:

1	$\left(\frac{x^{m^2}}{x^{2m-1}}\right)^{\frac{1}{m-1}}$	**2**	$\left(x^2-y\right)\left(x+xy-y^2\right)$
3	$\left(\frac{a^{-2}}{b^{-1}}+\frac{b^{-2}}{a^{-1}}\right)^{-1}$	**4**	$\frac{4-\frac{s^2}{r^2}}{\frac{s}{r}+2}$
5	$\left(\frac{3x^2y^{-3}z^9}{2x^{-1}y^6z^{-3}}\right)^3$	**6**	$\left(\frac{a^{\frac{-1}{m}}b^{\frac{-3}{m}}}{a^{\frac{-2}{n}}b^{\frac{1}{m}}}\right)^{-mn}$
7	$\left(\frac{12m^{-3}n^2}{8m^{-2}n^3}\right)^{-2}$	**8**	$\left(\frac{-12x^3y^5z^{10}}{4x^6y^{-1}z^3}\right)^{-2}$
9	$\left(\frac{x^{n^2}x^n}{x^{-n}x^{-1}}\right)^{\frac{-1}{n+1}}$	**10**	$\frac{u^{-2}v^{-6}w^3}{vw^{-5}}$
11	$\left(\frac{(ab)^{-1}c^2}{(ac^{-2})^{-1}b^2}\right)^{-2}$	**12**	$\left[\frac{\left(x^2y\right)^{-1}\left(5^3x^3y^{-2}\right)^2}{5^2(xy)^{-3}(x^5y^{-2})^{-1}}\right]^{-2}$

PDF Created with deskPDF PDF Writer - Trial :: http://www.docudesk.com

Question (3): What is the difference between the result of 2^{3^2} and 2^{2^3} ?

Question (4): Complete the following table.

Expression	$(-4)^2$	$-(4)^2$	-4^2	$-(-4)^2$
The value				

Question (5): Complete the following table.

Expression	$(-4)^3$	$-(4)^3$	-4^3	$-(-4)^3$
The value				

Question (6): Circle the correct answer.

(1) $\left(\frac{6x^2y}{3xy^{-1}}\right)^3 =$

(A) $8y^6x^3$ (B) $8x^3y^{-6}$ (C) $8y^6x^{-3}$ (D) None

(2) $\left(\frac{16xwry}{32xtuy^{-1}}\right)^0 =$ (A) 0 (B) 1 (C) $\frac{1}{2}$ (D) None

(3) $(3x^2y)(-2xy) =$

(A) $6x^3y^2$ (B) $-6x^2y^3$ (C) $-6x^3y^2$ (D) None

(4) $(3x^2y)(-2xy) =$

(A) $6x^3y^2$ (B) $-6x^2y^3$ (C) $-6x^3y^2$ (D) None

PDF Created with deskPDF PDF Writer - Trial :: http://www.docudesk.com

Question (7):

(1) The average of a, b and c is $\frac{4}{3}$, that is, $\frac{a+b+c}{3}=\frac{4}{3}$. Compute $3^a 3^b 3^c$.

(2) If $x=1+2^m$ and $y=1+2^{-m}$, then prove that $y=\frac{x}{x-1}$.

(3) Evaluate the number $\frac{(4444)^4}{(2222)^4}$.

(4) Prove that $4^{x+1}+4^{x+2}=(20)4^x$.

(5) Simplify the following expression and write your answer using positive exponents.

$$\left[\frac{\left(r^{-1}s\right)^4(rs)^{-1}}{r^5\left(sr^0\right)}\right]^2$$

PDF Created with deskPDF PDF Writer - Trial :: http://www.docudesk.com