

NO CALCULATOR!!

Show work when possible!

- 1) The expression $(-3x^2y^3)^3$ is equivalent to
 A) $-9x^6y^9$ C) $-27x^5y^6$
 B) $-27x^6y^9$ D) $-3x^5y^6$
- 2) The product of $3x^5$ and $2x^7$ is
 A) $5x^{12}$ C) $6x^{35}$
 B) $5x^{35}$ D) $6x^{12}$
- 3) When $5x^4y^3$ is multiplied by $2x^2y^3$, the product is
 A) $7x^6y^6$ C) $10x^6y^6$
 B) $7x^8y^9$ D) $10x^8y^9$
- 4) Simplify: $\frac{3^{x+4}}{3^x}$
 A) $-\frac{1}{81}$ C) -81
 B) $\frac{1}{81}$ D) 81
- 5) Simplify: $\frac{2^{4x}}{2^{4x-1}}$
 A) -1 C) -2
 B) $-\frac{1}{2}$ D) 2
- 6) Simplify: $(3^a)(3^{a+4})^3$
 A) 3^{4a+12} C) 3^{a^3+a+12}
 B) 3^{4a+4} D) $3^{a^3+a+144}$
- 7) If $y = \frac{1}{3}$, find the value of $y^{-1} - 3y^0$.
 A) $\frac{2}{3}$ C) 0
 B) 1 D) $-\frac{2}{3}$
- 8) For which value of x is $f(x) = \frac{1}{3^x - 1}$ undefined?
 A) 3 B) 1 C) -1 D) 0

- 9) The value of $(-64)^{\frac{2}{3}}$ is
 A) 16 C) $-\frac{1}{16}$
 B) -16 D) 512
- 10) If $x = 4$, the value of $4x^{\frac{1}{2}} + (x^0 + 3)^{-1}$ is
 A) $4\frac{1}{3}$ C) $8\frac{1}{4}$
 B) $8\frac{1}{7}$ D) $\frac{11}{28}$
- 11) Evaluate: $(\frac{9}{49})^{-\frac{3}{2}}$
 A) $-\frac{343}{27}$ C) $\frac{27}{343}$
 B) $\frac{343}{27}$ D) $-\frac{27}{343}$
- 12) Express with rational exponents: $\sqrt[3]{9}$
- 13) Express with rational exponents: $\sqrt[4]{3a}$
- 14) Express with rational exponents: $\sqrt[3]{x^2y^4}$
- 15) Express in radical form: $(3a)^{\frac{1}{2}}$
- 16) Express in radical form: $x^{\frac{1}{3}}$
- 17) Express in radical form: $(2y)^{\frac{2}{3}}$
- 18) Simplify: $-4^{\frac{1}{2}}$
- 19) Simplify: $(81)^{\frac{1}{4}}$
- 20) Simplify: $(\frac{x^4}{64})^{\frac{1}{2}}$
- 21) Simplify: $(.16)^{\frac{1}{2}}$
- 22) Simplify: $(.81x^4)^{\frac{1}{2}}$
- 23) Simplify: $(-27)^{\frac{2}{3}}$
- 24) Simplify: $-4 \cdot (16)^{\frac{1}{4}}$
- 25) Simplify: $(-8)^{-\frac{4}{3}}$

check # 1-11:

AA
 BB
 CCC
 DDDD

check # 12-25:

-8	3	$0.9x^2$	$\sqrt[3]{x}$
-2	9	$x^{2/3}y^{4/3}$	$\sqrt{3a}$
$\frac{1}{16}$	x^2	$9^{1/3}$	$\sqrt[3]{4y^2}$
0.4	$\frac{x^2}{8}$	$(3a)^{1/4}$	