Master Maths 10 Worksheet 20
Exponentials 1

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Name: _____

1. Write in exponent form.

$x \times y \times 3x \times 4y \times x \times x \times x \times y$

2. Simplify the following expressions.

(a) $x^5 \times x^6$ (b) $2m^4 \times 5n^3 \times m^7 \times 2n \times n^5$

(c) $2a^4b^5c \times 6a^5b^3c^6$ (d) $y^8 \div y^5$

(e) $\dfrac{8m^8n^{12}}{4m^6n}$ (f) $\dfrac{20a^6b^9c^4}{16ab^5c^4}$

(g) $(a^3)^4$ (h) $(2m^5)^6$ (i) $(2x^5y^6z)^3$

(j) $\left(\dfrac{m^4n^3}{p^2}\right)^4$ (k) $\left(\dfrac{2a^3b^2c^6}{3m^4n}\right)^5$

(l) x^0 (m) $6m^0$ (n) $(x^2y^3)^0 + (7x)^0 + 6x^0$

3. Write the following with positive indices.

$\dfrac{3}{4}a^4b^{-5}c^{-1}$

4. Simplify the following expressions.

(a) $\dfrac{(x^4y^5)^2 \times (x^2y^3)^3}{x^5y^7}$ (b) $\dfrac{(m^3n^4)^3 \times (m^6n^5)^4}{(m^2n^4)^6}$

(c) $\left(\dfrac{3a^5b^4}{2a^3b}\right)^4$ (d) $\left(\dfrac{4x^7y^8}{9x^2y^3}\right)^2$

5. Write the following surds in index form.

(a) $\sqrt[4]{m}$ (b) $(\sqrt[5]{a})^6$

6. Use a calculator to evaluate the following.

(a) $5^7 - 7^5$ (b) $8^{\frac{8}{3}}$ (c) $(\sqrt[4]{28\,561})^3$

7. Simplify the following.

(a) $\dfrac{x^{\frac{1}{2}}y^{\frac{2}{3}} \times x^{\frac{9}{4}}y^{\frac{2}{9}}}{x^2y^{\frac{7}{9}}}$ (b) $\dfrac{(m^{\frac{1}{2}}n^{\frac{3}{4}})^8 \times (m^{\frac{5}{6}}n^{\frac{2}{3}})^6}{(m^2n^{\frac{5}{4}})^4}$