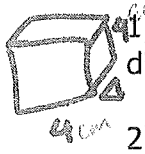
Math 9 Chapter 2 Powers and Exponents
2.1 – 2.5 Checkup

Exponent Laws

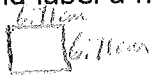
Multiplication Law $a^2 \times a^3 = a^{2+3} = a^5$ Division Law $a^5 \div a^2 = a^{5-2} = a^3$

Power Law $(a^2)^3 = a^{2\times3} = a^6$

Power of a Product $(a \times b)^2 = a^2 \times b^2$ Quotient Law $\left(\frac{a}{b}\right)^2 = \frac{a^2}{b^2}$



1) A square has an area of 45 square cm. Sketch and label a model, then find the dimensions to 2 decimal places. 6.71 cm



2) A cube has side lengths of 4 cm. a) Sketch and label a model. b) Find the area of 1 face. c) Find the surface area. d) Find the volume b) 16 cm^2 c) 96 m^2 d) 64 cm^3

3) Complete the table, below

Power	Base	Exponent	Repeated Multiplication	Standard Form
$(-3)^4$	-3	4	(-3)(-3)(-3)(-3)	81
2^5	2	5	2x2x2x2x2	32
10^6	10	6	10x10x10x10x10x10	1 000 000

Simplify the following, as a power

4) $2^3 \times 2^5 \times 2$ 2^9

5) $(5\times7)^3$ $5^3 \times 7^3$

6) $(-4)^7 \div (-4)^5$ $(-4)^2$

7) $\left(\frac{2}{3}\right)^4$ $\frac{2^4}{3^4}$

8) $(2^5)^3$ 2^{15}

9) $(2^3 \times 5)^4$ $2^{12} \times 5^4$

Fill in the blank so the statement is true

10) $4^{\boxed{3}} = 8^2$

11) $25^3 = 125^{\boxed{2}}$

Simplify into power form

12) $\left(2^2 \times 5^3\right)^2 \times \left(2^4 \times 5\right)^3$

$2^{18} \times 5^9$

13) $\dfrac{\left((-3)^5\right)^2}{\left((-3)^2\right)^3}$

$(-3)^4$

14) $\dfrac{8^4 \times 8^5}{8^6 \times 8}$

8^2

Simplify into the lowest possible base

15) $4^2 \times 2^3$

2^7

16) $9^4 \div 3^3$

3^5

17) $\left(5^3 \times 25^2\right)^4$

5^{28}

Simplify, then evaluate. NO DECIMALS

18) 3^{-2}

$\frac{1}{9}$

19) $(-5)^{-1}$

$\frac{1}{-5}$

20) $\left(\frac{3}{5}\right)^{-2}$

$25/9$

21) $\dfrac{1}{2^{-3}}$

8

22) $2^3 \div 2^5$

$\frac{1}{4}$

23) $(-3)^2 \times (-3)^{-3}$

$\frac{1}{-3}$

24) $\left(2^3\right)^{-2}$

$\frac{1}{64}$