Exponent Laws

Part A: Multiplying Powers with the Same Base

|  |  |  |
| --- | --- | --- |
|  | Expand | Simplify |
| x2 X x3 |  |  |
| a4 X a3 |  |  |
| y1 X y5 |  |  |

In general, the rule is:

 xm X xn =

Part B: Dividing Powers with the Same Base

|  |  |  |
| --- | --- | --- |
|  | Expand | Simplify |
| x4 ÷ x3 |  |  |
| a6 ÷ a3 |  |  |
| y5 ÷ y2 |  |  |

In general, the rule is:

xm ÷ xn  =

Part C: Taking the Power of a Power

|  |  |  |
| --- | --- | --- |
|  | Expand | Simplify |
| (x4 )3 |  |  |
| (a6)2 |  |  |
| (y5 )3 |  |  |

In general, the rule is:

(xm ) n  =

Part D: Powers with Negative Exponents and Exponent Zero

|  |  |  |
| --- | --- | --- |
| Power | Answer | Pattern? |
| 26 | 64 |  |
| 25 | 32 |  |
| 24 | 16 |  |
| 23 | 8 |  |
| 22 | 4 |  |
| 21 | 2 |  |
| 20 |  |  |
| 2-1 |  |  |
| 2-2 |  |  |
| 2-3 |  |  |
| 2-4 |  |  |

In general, the rule is:

x0  =

 x -m=

 Problems:

4-5 x 43

(-2)-2 ÷ (-2)4

(3-4)-2

a3 X a-2 ÷a-6

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

Homework: pg 362-364 #1def, #2 def, #3def #4 - 6,12