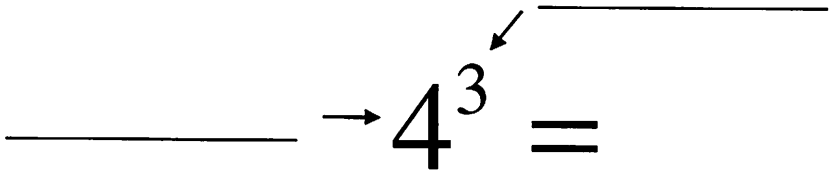
Introducing Exponents

Before we start evaluating expressions, we need to talk about exponents.



Express the following using Exponents (Exponent Form).

1. $7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 \cdot 7$

2. $3 \cdot 3 \cdot 3 \cdot 3$

3. 5

4. $12 \cdot 12 \cdot 12 \cdot 12 \cdot 12 \cdot 12 \cdot 12 \cdot 12$

5. $3 \cdot 3 \cdot 3 + 4 \cdot 4$

6. $2 \cdot 2 \cdot 8 \cdot 8 \cdot 8 \cdot 8$

Express the following as a product of factors (Expanded Form).

1. 15^4

2. 4^2

3. 3^9

4. $6^3 + 2^2 \cdot 5^2$

Express the following in Expanded Form and then in Standard Form

1. 5^3

2. 2^5

Let's tie this into our Order of Operations.

P

E

M ←→ D

A ←→ S

1. $3 \cdot 6^2 + 4$	2. $24 \div 2^3 + 6$
3. $5^2 + 8 \div 2$	4. $25 - 8 \cdot 2 + 3^3$
5. $6 \cdot (13-7) \div (8-5)^2$	6. $12 \div 4 + (4^3 - 6)$

Introducing Exponents

Before we start evaluating expressions, we need to talk about exponents.

exponent

base → $4^3 = 4 \cdot 4 \cdot 4 = 64$

Express the following using Exponents (Exponent Form).

1. $7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 \cdot 7$

7^6

2. $3 \cdot 3 \cdot 3 \cdot 3$

3^4

3. 5

5^1

4. $12 \cdot 12 \cdot 12 \cdot 12 \cdot 12 \cdot 12 \cdot 12 \cdot 12$

12^8

5. $3 \cdot 3 \cdot 3 + 4 \cdot 4$

$3^3 + 4^2$

6. $2 \cdot 2 \cdot 8 \cdot 8 \cdot 8 \cdot 8$

$2^2 \cdot 8^4$

Express the following as a product of factors (Expanded Form).

1. 15^4

$15 \cdot 15 \cdot 15 \cdot 15$

2. 4^2

$4 \cdot 4$

3. 3^9

$3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3$

4. $6^3 + 2^2 \cdot 5^2$

$6 \cdot 6 \cdot 6 + 2 \cdot 2 \cdot 5 \cdot 5$

Express the following in Expanded Form and then in Standard Form

1. 5^3

$5 \cdot 5 \cdot 5$

$25 \cdot 5$

125

2. 2^5

$2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$

$4 \cdot 2 \cdot 2 \cdot 2$

$8 \cdot 2 \cdot 2$

$16 \cdot 2$

32

Let's tie this into our Order of Operations.

P

E

M ←→ D

A ←→ S

1. $3 \cdot 6^2 + 4$ $3 \cdot 36 + 4$ $108 + 4$ 112 P E MD AS	2. $24 \div 2^3 + 6$ $24 \div 8 + 6$ $3 + 6$ 9 P E MD AS
3. $5^2 + 8 \div 2$ $25 + 8 \div 2$ $25 + 4$ 29 P E MD AS	4. $25 - 8 \cdot 2 + 3^3$ $25 - 8 \cdot 2 + 27$ $25 - 16 + 27$ $9 + 27$ 36 P E MD AS
5. $6 \cdot (13-7) \div (8-5)^2$ $6 \cdot 6 \div (8-5)^2$ $6 \cdot 6 \div 3^2$ $6 \cdot 6 \div 9$ $36 \div 9$ 4 P E MD AS	6. $12 \div 4 + (4^3 - 6)$ $12 \div 4 + (64 - 6)$ $12 \div 4 + 58$ $3 + 58$ 61 P E MD AS