Name

# Exponents - Power Law - Exponent Base with Variable Power to Exponent Base with Unknown Power

**1** Solve for the missing exponent (x) in reduced form

$$(2^3)^n = (2^4)^x$$

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| $x = 4n$ | $x = \frac{3n}{6}$ | $x = \frac{2n}{4}$ | $x = \frac{3n}{4}$ | $x = \frac{3}{6n}$ | $x = \frac{6n}{4}$ |

**2** Solve for the missing exponent (x) in reduced form

$$(2^2)^n = (2^4)^x$$

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| $x = \frac{6n}{4}$ | $x = \frac{2n}{6}$ | $x = \frac{2}{6n}$ | $x = 2n$ | $x = \frac{n}{2}$ | $x = 4n$ |

**3** Solve for the missing exponent (x) in reduced form

$$(3^2)^n = (3^4)^x$$

| A | B |
|---|---|
| $x = 2n$ | $x = \frac{6n}{4}$ |
| C | D |
| $x = 16n$ | $x = \frac{3}{4n}$ |
| E | F |
| $x = \frac{n}{2}$ | $x = \frac{12n}{2}$ |

**4** Solve for the missing exponent (x) in reduced form

$$(2^2)^n = (2^5)^x$$

| A | B |
|---|---|
| $x = \frac{2n}{5}$ | $x = \frac{4n}{5}$ |
| C | D |
| $x = \frac{2}{5n}$ | $x = 5n$ |
| E | F |
| $x = 10n$ | $x = 15n$ |

**5** Solve for the missing exponent (x) in reduced form

$$(3^4)^n = (3^2)^x$$

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| $x = 2n$ | $x = \frac{4n}{12}$ | $x = \frac{6}{4n}$ | $x = \frac{3}{2n}$ | $x = 6n$ | $x = 8n$ |

**6** Solve for the missing exponent (x) in reduced form

$$(2^2)^n = (2^3)^x$$

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| $x = \frac{2n}{3}$ | $x = 9n$ | $x = \frac{6n}{2}$ | $x = 2n$ | $x = 6n$ | $x = \frac{2}{4n}$ |

**7** Solve for the missing exponent (x) in reduced form

$$(4^3)^n = (4^2)^x$$

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| $x = 3n$ | $x = 6n$ | $x = \frac{3n}{2}$ | $x = 7n$ | $x = \frac{4n}{3}$ | $x = 2n$ |

**8** Solve for the missing exponent (x) in reduced form

$$(2^4)^n = (2^5)^x$$

| A | B |
|---|---|
| $x = \frac{4}{8n}$ | $x = \frac{4n}{5}$ |
| C | D |
| $x = \frac{8n}{5}$ | $x = 10n$ |
| E | F |
| $x = \frac{4n}{8}$ | $x = 5n$ |