

## Solutions – Index Laws (A)

Simplify  $\frac{3x^6}{6x^3}$

$\frac{x^3}{2}$

Simplify  $(3x^3)^2 \times x^2$

$9x^8$

Simplify  $(\frac{2x^2}{3y^3})^2$

$\frac{4x^4}{9y^6}$

Simplify  $4x^4 \times 3x^6$

$12x^{10}$

Simplify  $(2x^4)^3$

$8x^{12}$

Simplify  $(2x^3y^2)^2$

$4x^6y^4$

## Solutions – Index Laws (B)

Simplify  $(2x^2y^3)^3$

$$8x^6y^9$$

Simplify  $(\frac{2x^2}{3y^3})^3$

$$\frac{8x^6}{27y^9}$$

Simplify  $2x^6 \times 4x^5$

$$8x^{11}$$

Simplify  $(4x^2)^2$

$$16x^4$$

Simplify  $(4x^3)^2 \times x^4$

$$16x^{10}$$

Simplify  $\frac{2x^5}{5x^3}$

$$\frac{2x^2}{5}$$

## Solutions – Index Laws (C)

Simplify  $\frac{4x^7}{6x^3}$   
 $\frac{2x^4}{3}$

Simplify  $\left(\frac{3x^3}{2y^2}\right)^2$   
 $\frac{9x^6}{4y^4}$

Simplify  $3x^6 \times 2x^4$   
 $6x^{10}$

Simplify  $(2x^3y^3)^3$   
 $8x^9y^9$

Simplify  $(3x^3)^2$   
 $9x^6$

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

## Solutions – Index Laws (D)

Simplify  $(3x^2)^3$

$$27x^6$$

Simplify  $(\frac{3x^2}{2y^2})^2$

$$\frac{9x^4}{4y^4}$$

Simplify  $\frac{4x^7}{6x^4}$

$$\frac{2x^3}{3}$$

Simplify  $3x^5 \times 2x^4$

$$6x^9$$

Simplify  $(3x^2)^2 \times x^2$

$$9x^6$$

Simplify  $(2x^4y^4)^2$

$$4x^8y^8$$

## Solutions – Index Laws (E)

Simplify  $4x^3 \times 4x^5$

$$16x^8$$

Simplify  $\frac{5x^8}{2x^2}$

$$\frac{5x^6}{2}$$

Simplify  $(4x^2)^3$

$$64x^6$$

Simplify  $(3x^3y^3)^2$

$$9x^6y^6$$

Simplify  $(4x^4)^3 \times x^2$

$$64x^{14}$$

Simplify  $\left(\frac{2x^3}{3y^3}\right)^3$

$$\frac{8x^9}{27y^9}$$

## Solutions – Index Laws (F)

Simplify  $(4x^2)^3 \times x^3$

$$64x^9$$

Simplify  $(2x^4)^3$

$$8x^{12}$$

Simplify  $(2x^4y^2)^3$

$$8x^{12}y^6$$

Simplify  $\left(\frac{3x^2}{2y}\right)^3$

$$\frac{27x^6}{8y^3}$$

Simplify  $4x^3 \times 3x^6$

$$12x^9$$

Simplify  $\frac{6x^7}{3x^4}$

$$2x^3$$

## Solutions – Index Laws (G)

Simplify  $(3x^2)^2$

$$9x^4$$

Simplify  $(3x^2)^2 \times x^3$

$$9x^7$$

Simplify  $(\frac{3x^2}{2y^2})^2$

$$\frac{9x^4}{4y^4}$$

Simplify  $\frac{2x^9}{5x^3}$

$$\frac{2x^6}{5}$$

Simplify  $(3x^4y^4)^3$

$$27x^{12}y^{12}$$

Simplify  $4x^2 \times 2x^5$

$$8x^7$$

## Solutions – Index Laws (H)

Simplify  $(2x^2)^3$

$$8x^6$$

Simplify  $(2x^4y^2)^3$

$$8x^{12}y^6$$

Simplify  $3x^4 \times 2x^6$

$$6x^{10}$$

Simplify  $\left(\frac{3x^2}{2y^3}\right)^2$

$$\frac{9x^4}{4y^6}$$

Simplify  $(3x^4)^2 \times x^4$

$$9x^{12}$$

Simplify  $\frac{3x^9}{6x^3}$

$$\frac{x^6}{2}$$

## Solutions – Index Laws (I)

Simplify  $\frac{2x^6}{6x^4}$   
 $\frac{x^2}{3}$

Simplify  $(4x^3)^3$

$64x^9$

Simplify  $(4x^4)^2 \times x^2$

$16x^{10}$

Simplify  $4x^3 \times 3x^3$

$12x^6$

Simplify  $\left(\frac{2x^2}{3y}\right)^2$   
 $\frac{4x^4}{9y^2}$

Simplify  $(2x^4y^3)^3$

$8x^{12}y^9$

## Solutions – Index Laws (J)

Simplify  $\frac{5x^8}{6x^2}$   
 $\frac{5x^6}{6}$

Simplify  $4x^6 \times 4x^6$

$16x^{12}$

Simplify  $(2x^4y^2)^2$

$4x^8y^4$

Simplify  $\left(\frac{2x^3}{3y^2}\right)^2$   
 $\frac{4x^6}{9y^4}$

Simplify  $(4x^3)^2 \times x^3$

$16x^9$

Simplify  $(4x^4)^2$

$16x^8$