

## Change of Base

- (a) Write  $4^5$  as a power of 2.  
(b) Write  $8^3$  as a power of 2.  
(c) Write  $16^3$  as a power of 4.  
(d) Write  $27^4$  as a power of 3.  
(e) Write  $125^3$  as a power of 5.

- (a)  $2^{10}$   
(b)  $2^9$   
(c)  $4^6$   
(d)  $3^{12}$   
(e)  $5^9$

- (a)  $2^6 \times 2^4 = 4^n$ . Find  $n$ .  
(b)  $8^n = 2^3 \times 2^9$ . Find  $n$ .  
(c)  $3^n = 3^3 \times 9^2$ . Find  $n$ .  
(d)  $2^n = \frac{16}{2^3}$ . Find  $n$ .  
(e)  $\frac{3^8}{81} = 3^n$ . Find  $n$ .

- (a)  $n = 5$   
(b)  $n = 4$   
(c)  $n = 7$   
(d)  $n = 1$   
(e)  $n = 4$

- (a)  $4^3 \times 16 = 2^n$ . Find  $n$ .  
(b)  $243 \times 9^2 = 3^n$ . Find  $n$ .  
(c)  $2^n \times 4^3 = 1024$ . Find  $n$ .  
(d)  $\frac{9^2 \times 81^{1/2}}{3^2} = 3^n$ . Find  $n$ .  
(e)  $\frac{2^{2n} \times 64}{4^2} = 2^3$ . Find  $n$ .

- (a)  $n = 10$   
(b)  $n = 9$   
(c)  $n = 4$   
(d)  $n = 4$   
(e)  $n = \frac{1}{2}$

- (a)  $128 = 4^{2x} \times 2^x$ . Find  $x$ .  
(b)  $\frac{1}{\sqrt[3]{9^4}} = 3^x$ . Find  $x$ .  
(c)  $16^{1/5} \times 2^x = 8^{3/4}$ . Find  $x$ .  
(d)  $(2^{1/2})^x = \frac{32}{2^2}$ . Find  $x$ .  
(e)  $243 = \frac{3^x}{\sqrt[3]{81}}$ . Find  $x$ .

- (a)  $x = \frac{7}{5}$   
(b)  $x = -\frac{8}{3}$   
(c)  $x = \frac{29}{20}$   
(d)  $x = 6$   
(e)  $x = \frac{19}{3}$