

# Factor Theorem - Section Test

- 1) List the roots of equation  $(x-2)(x+1)x=0$  in ascending order.
- 2) Suppose  $x-3$  is a factor in the polynomial  $f$ . Which of the following can be deduced?
- (a)  $f(3)=0$  (b)  $f(-3)=0$   
(c)  $f(x)=0$  has more than one real root. (d)  $f$  is a quadratic.
- 3)  $x+1$  is a factor of  $x^2+ax+2$ . What is the value of  $a$ ?
- 4) Three of the following statements are true and **one** is false. Which one is **false**?
- (a)  $(x-2)$  is a factor of  $x^3+x^2-4x-4$  (b)  $(x-3)$  is a factor of  $x^3+2x^2-8x-21$   
(c)  $(x+1)$  is a factor of  $x^4-x^3+2x^2-4x-8$  (d)  $(x+2)$  is a factor of  $x^3+2x^2-4x+8$
- 5)  $(x-2)$  is a linear factor of just one of the following polynomials. Which **one**?
- (a)  $x^3+x^2-4x-2$  (b)  $x^3+2x^2-8x-2$   
(c)  $x^3+2x^2-4x+8$  (d)  $x^4-x^3+2x^2-4x-8$
- 6) Which **one** of the following is a correct factorisation of the polynomial  $x^3-4x^2+x+6$ ?
- (a)  $(x-6)(x-1)(x+1)$  (b)  $(x-2)(x-3)(x+1)$   
(c)  $(x+2)(x+3)(x-1)$  (d) None of these.
- 7) Which of the following is a factor of  $x^3+x^2+2x+8$ ?
- (a)  $x+1$  (b)  $x-1$   
(c)  $x+2$  (d)  $x-2$
- 8)  $x-2$  is a factor of  $x^3-5x^2+ax+2$ .  
What is the value of  $a$ ?
- 9)  $(x-1)$  is a factor of  $x^3+x^2-5x+3$ . This expression can be written in the form
- $$(x-1)\left(x^2+\boxed{\phantom{00}}x-\boxed{\phantom{00}}\right)$$
- 10)  $x^3-x^2-34x-56$  can be written in the form:  
 $(x+4)(x+a)(x+b)$  where  $a$  and  $b$  are integers and  $a \leq b$   
What are the values for  $a$  and  $b$ ?

