

# HW84

1. a)  $x = -5, 3, 7$   
 b)  $x = -6, -3, 2, 6$   
 c)  $x = -5, 2$   
 d)  $x = -5, -3, 1, 4, 6$

2. a)  $(0, 105)$   
 b)  $(0, 108)$   
 c)  $(0, -100)$   
 d)  $(0, -90)$

3. a) 3  
 b) 4  
 c) 2  
 d) 5

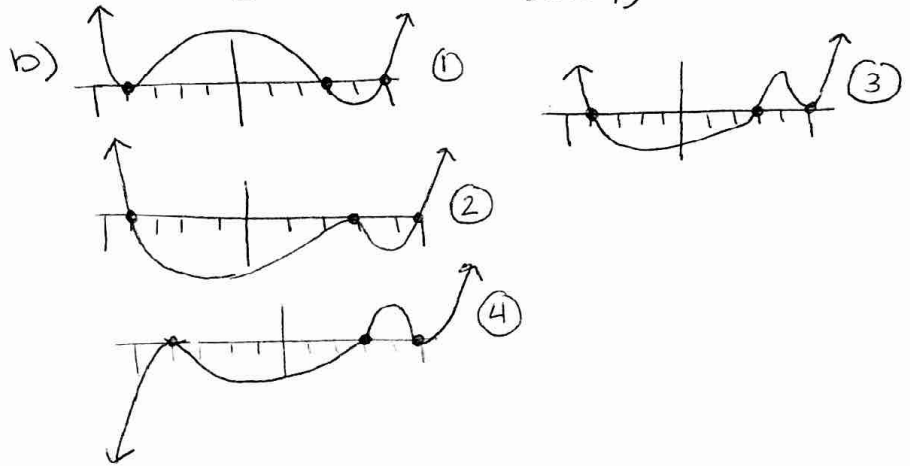
4. ~~a)~~  $f(x) = a(x+5)(x-3)(x-7)$   
 $105 = a(5)(-3)(-7)$   
 $1 = a$   
 $f(x) = (x+5)(x-3)(x-7)$

b)  $f(x) = a(x+6)(x+3)(x-2)(x-6)$   
 $108 = a(6)(3)(-2)(-6)$   
 $108 = 216a$   
 $\frac{1}{2} = a$   
 $f(x) = \frac{1}{2}(x+6)(x+3)(x-2)(x-6)$

c)  $f(x) = a(x+5)(x-2)$   
 $-100 = a(5)(-2)$   
 $10 = a$   
 $f(x) = 10(x+5)(x-2)$

~~d)~~  $f(x) = a(x+5)(x+3)(x-1)(x-4)(x-6)$   
 $-90 = a(5)(3)(-1)(-4)(-6)$   
 $\frac{1}{4} = a$   
 $f(x) = \frac{1}{4}(x+5)(x+3)(x-1)(x-4)(x-6)$

6. a) ii: 4, 2@ $x=3$ , 1@ $x=5$ , 1@ $x=4$   
 iii: 4, 1@ $x=3$ , 2@ $x=5$ , 1@ $x=-4$   
 iv: 5,  $f(x) = (x-3)^2(x-5)(x+4)^2$



7. a) 4  
 b) 4  
 c)  $f(x) = a(x+5)(x)(x+1)(x-4)$   
 $216 = a(6)(1)(2)(-3)$   
 $-6 = a$   
 $f(x) = -6(x+5)(x)(x+1)(x-4)$

8. a)  $f(x) = a(x+4)(x-5)(x+2)^2$   
 $-80 = a(4)(-5)(2)^2$   
 $1 = a$   
 $f(x) = (x+4)(x-5)(x+2)^2$   
 b)  $f(x) = a(x+4)(x-5)(x+2)^2$   
 $160 = a(4)(-5)(2)^2$   
 $-2 = a$   
 $f(x) = -2(x+4)(x-5)(x+2)^2$

11. i.  $f(x) = (x+5)^2(x+2)(x-1)$   
 ii.  $f(x) = -(x+5)^2(x+2)(x-1)$   
 iii.  $f(x) = (x+5)^2(x+2)(x-1)^2$   
 iv.  $f(x) = -(x+5)(x+2)^3(x-1)$