

p107

#9



x	y
0	5
1	8
3	8
5	0

① Look for 2 equal y-values

② Find h  $h = \frac{1+3}{2} = \frac{4}{2} = 2$ ③ zero<sub>1</sub> = 5 ∴ deduce the other zero: -1

④ zeros is a point

∴ use  $f(x) = a(x-x_1)(x-x_2)$ 

$$f(x) = a(x-5)(x+1)$$

$$\text{use } (0,5) \quad 5 = a(0-5)(0+1)$$

$$5 = a(-5)(1)$$

$$5 = -5a$$

$$-1 = a$$

$$f(x) = -1(x-5)(x+1)$$

x	y
-1	48
-2	28
3	48
5	0
7	-80

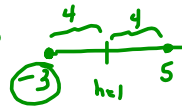
Find the rule

\* ① same y-values

\* ②  $h = \frac{-1+3}{2} = \frac{2}{2} = 1$

vertex not in table  
∴ no st. form

③ zero = 5 other zero



$f(x) = a(x-h)^2 + k$

④ zeros  $\{-3, 5\}$ , point  $(7, -80) \Rightarrow$  fact. form

$$f(x) = a(x+3)(x-5)$$

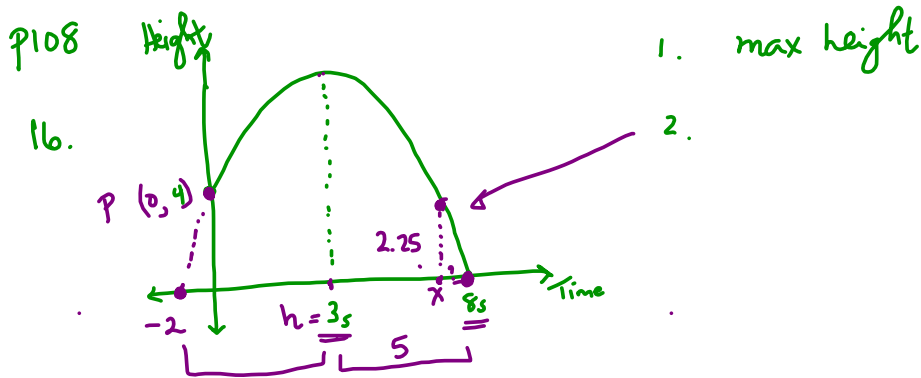
$$-80 = a(7+3)(7-5)$$

$$-80 = a(10)(2)$$

$$-80 = 20a$$

$$-4 = a$$

$$f(x) = -4(x+3)(x-5)$$



a) Rule      2<sup>nd</sup> zero is -2

$$f(x) = a(x+2)(x-8)$$

$$4 = a(0+2)(0-8)$$

$$4 = a(2)(-8)$$

$$4 = -16a$$

$$\frac{-4}{-16} = \frac{-1}{4} = -0.25 = a$$

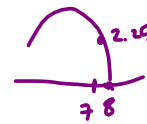
$$f(x) = -0.25(x+2)(x-8)$$

① let  $x = 3$

$$f(3) = -0.25(5)(-5)$$

$$= 6.25$$

6.25 m



② let  $y = 2.25$

$$2.25 = -0.25(x+2)(x-8)$$

$$\div -0.25 \quad \div -0.25$$

$$-9 = (x+2)(x-8)$$

$$-9 = x^2 - 6x - 16$$

$$0 = x^2 - 6x - 7$$

$x^2$      $-6x$      $-7$   
mxm      mxn      mxn

$$0 = (x-7)(x+1)$$

$x-7=0$	$x+1=0$
$x=7$	$x=-1$
<u>accept</u>	<u>reject (-)</u>

Answer: 1 second