

1990 BC 1

$$V = (x-1)^3(2) + (2x-3)3(x-1)^2$$

$$V = (x-1)^2[2(x-1) + 3(2x-3)]$$

$$a. = (x-1)^2[8x-11]$$

b.

	1	$\frac{11}{8}$
$(x-1)^2$	+	+
$8x-11$	—	0
	—	0
	—	+

$$0 < x < 1$$

$$1 < x < \frac{11}{8}$$

$$\begin{aligned} c. \quad a &= (x-1)^2 8 + (8x-11)2(x-1) \\ &= (x^2 - 2x + 1)8 + 2(8x^2 - 8x - 11x + 11) \\ &= 8x^2 - 16x + 8 + 16x^2 - 38x + 22 \\ &= 24x^2 - 54x + 30 \\ &= 4x^2 - 9x + 5 \\ &= (4x-5)(x-1) \end{aligned}$$

$$x = \frac{5}{4}$$

$$x = 1$$

NOT
MOVING

1990 BC 2



a. $\pi \int_0^2 (e^x)^2 - (e^{-x})^2$

b. $\Rightarrow 2\pi \int_0^2 x (e^x - e^{-x})$

Rc
H3

$$(k, (12 - k^2))$$

$$y - (12 - k^2) = m(x - k)$$

$$y'(x) = -2x$$

~~scribbles~~

$$y=0 \quad x=4$$

$$y - (12 - k^2) = (-2k)(x - k)$$

$$y = 12 - k^2 - 2kx + 2k^2$$

$$y = 12 + k^2 - 2kx$$

$$0 = 12 + k^2 - 8k$$

$$0 = k^2 - 8k + 12$$

$$0 = k^2 - 8k + 12$$

~~scribbles~~

$$\boxed{6, 2}$$

$$12 - 2x$$

~~$$y = 12 - (3.67544) = (12 - 2(3.67544)) / (x = 3.67544)$$~~

$$y = 12 + k^2 - 2kx$$

$$\boxed{k = 6 \text{ or } k = 2}$$