Pre Calc: Quiz 2-4 thru 2-6 Warm Up

1) State whether the function described by the equation models exponential growth, exponential decay or neither.

a) $y = \dfrac{1}{2}x^5$

- Neither
- Variable "x" is not an exponent

b) $y = 0.5(1.7)^x$ ↙ b

- Growth
- b > 1

c) $y = (3.2)(0.9)^x$ ↙ b

- Decay
- 0 < b < 1

2) The half-life of barium, which is used in CAT scans for medical diagnosis is 2.6 minutes. Suppose a patient swallows a drink containing 10 units of barium prior to getting a CAT scan. Find the amount of barium left after 15 minutes.

$0.5 = 1(b)^{2.6}$

$(0.5)^{1/2.6} = (b^{2.6})^{1/2.6}$

$b = 0.766$

$y = 16(0.766)^{15}$

$y = 6.183$ units Barium after 15 minutes

3) The table below shows the height in feet of a ball above ground level t seconds after it has been thrown from a point 20 feet above the top of a cliff. Fit a quadratic model to the data.

Time (sec)	1	1.5	2	2.5
Height (feet)	54	59	56	45

$y = -16x^2 + 56x + 20$

4) Find the exponential function that passes through points (0, 5) and (1, 10)

x	y
0	5
1	10

$b^{1-0} = \dfrac{10}{5}$

$b = 2$

$y = 5(2)^x$

$y = a(2)^x$

$5 = a(2)^0$

$5 = a(1)$

$5 = a$