Calculus AB

2-3a

Position

(Stewart Supplement)

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4) A particle moves according to a law of motion $s = f(t)$, $t \geq 0$, where t is measured in seconds and s is measured in feet.

$$f(t) = t^4 - 4t + 1$$

a) Find the velocity at time t.

b) What is the velocity after 3s?

c) When is the particle at rest?

d) When is the particle moving in the positive direction?

e) Find the total distance traveled during the first 8 sec.

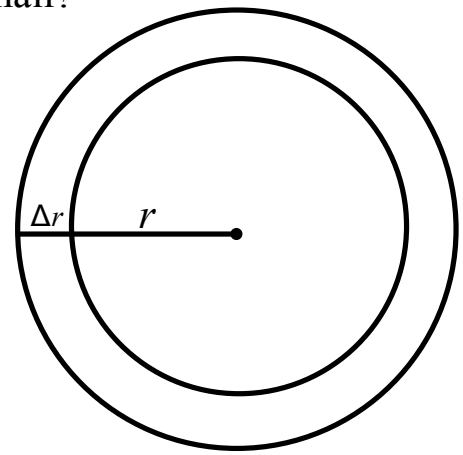
f) Draw a diagram to illustrate the motion of the particle.

13) a) Find the average rate of change of the area of a circle with respect to its radius (at any r) as r changes from:

a) *i*) 2 to 3 *ii*) 2 to 2.5

b) Find the instantaneous rate of change when $r = 2$.

c) Show that the rate of change of the area of a circle with respect to its radius (any r) is equal to the circumference of the circle. Try to explain geometrically why this is true by drawing a circle whose radius is increased by an amount Δr. How can you approximate the resulting change in area ΔA if Δr is small?



Assignment:

Handout (Pg. 166)
3, 7-10, 14, 15
18-21, 33, 35