

Ch2 Hwk#5 - Related Rates with Answers

Date _____ Period _____

Solve each related rate problem. The answers are provided. Please show the proper AP set-up of the problems and the necessary calculations to arrive at your answers. Choose 3 problems!

- 1) A hypothetical square shrinks so that the length of its diagonals are changing at a rate of -6 m/min. At what rate is the area of the square changing when the diagonals are 3 m each?

- 2) A spherical snowball is rolled in fresh snow, causing it to grow so that its radius increases at a rate of 2 in/sec. How fast is the volume of the snowball increasing when the radius is 7 in?

- 3) A crowd gathers around a movie star, forming a circle. The radius of the crowd increases at a rate of 5 ft/sec. How fast is the area taken up by the crowd increasing when the radius is 7 ft?

- 4) A conical paper cup is 20 cm tall with a radius of 10 cm. The cup is being filled with water so that the water level rises at a rate of 2 cm/sec. At what rate is water being poured into the cup when the water level is 3 cm?

- 5) Water slowly evaporates from a circular shaped puddle. The radius of the puddle decreases at a rate of 7 in/hr. Assuming the puddle retains its circular shape, at what rate is the area of the puddle changing when the radius is 4 in?

Answers to Ch2 Hwk#5 - Related Rates with Answers (ID: 1)

1) $-18 \text{ m}^2/\text{min}$

2) $392\pi \text{ in}^3/\text{sec}$

3) $70\pi \text{ ft}^2/\text{sec}$

4) $\frac{9\pi}{2} \text{ cm}^3/\text{sec}$

5) $-56\pi \text{ in}^2/\text{hr}$