Calculus	Name	ID: 1
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Assignment	Date	Period

Solve each related rate problem.

1) A crowd gathers around a movie star, forming a circle. The radius of the crowd increases at a rate of 8 ft/sec. How fast is the area taken up by the crowd increasing when the radius is 10 ft?

2) A hypothetical cube grows so that the length of its sides are increasing at a rate of 2 m/min. How fast is the volume of the cube increasing when the sides are 3 m each?

3) A hypothetical square grows so that the length of its diagonals are increasing at a rate of 8 m/min. How fast is the area of the square increasing when the diagonals are 9 m each?

4) A hypothetical square grows so that the length of its sides are increasing at a rate of 8 m/min. How fast is the area of the square increasing when the sides are 11 m each?

5) A spherical balloon is inflated so that its radius increases at a rate of 4 cm/sec. How fast is the volume of the balloon increasing when the radius is 6 cm?

6) Water leaking onto a floor forms a circular pool. The radius of the pool increases at a rate of 4 cm/min. How fast is the area of the pool increasing when the radius is 13 cm?

7) A spherical snowball is rolled in fresh snow, causing it to grow so that its radius increases at a rate of 3 in/sec. How fast is the volume of the snowball increasing when the radius is 7 in?