

These formulas will be provided:

$$\sum_{i=0}^n ar^i = a + ar^1 + ar^2 + ar^3 + \cdots + ar^{n-1} + ar^n = \frac{a(1-r^{n+1})}{1-r}$$

$$\sum_{i=0}^{\infty} ar^i = a + ar^1 + ar^2 + ar^3 + \cdots + ar^n + \cdots = \frac{a}{1-r} \text{ if } -1 < r < 1$$

The angle  $\theta$  between two vectors  $\vec{u}$  and  $\vec{v}$  is given by  $\vec{u} \cdot \vec{v} = \|\vec{u}\| \|\vec{v}\| \cos \theta$ , where  $0^\circ \leq \theta \leq 180^\circ$ .

### Ch 10 Vectors

Work with  $n$ -dimensional vectors,  $n > 2$  **10.2** 9-12, 25, 28 and **10.3** 1-12, 15 and **Ch 10 Review** 17-19.

Find the dot product of two vectors. Find the angle between two vectors. Section **10.4** 1-10, 13, 14

### Ch 11 Sequences and Series

Determine if a sequence/series is arithmetic, geometric, or neither by looking for the common difference or common ratio. Find the  $n$ th term by using an appropriate linear or exponential model (as opposed to referencing an esoteric formula). Section **11.1** 1-33, Section **11.2** 1-4, Section **11.3** 1-4 **Ch 11 Review** 4, 5

Use sigma notation. Section **11.2** 10-29, 33-36, Section **11.3** 5, 6, 10, 15 and Section **11.4** 9-11

Solve applied problems. Section **11.1** 26-29, 39, and **Chapter 11 Review** 9-12, 15, 18, 23

Find the sum of an arithmetic series, not by appealing to a formula, but by using a strategy similar to Gauss' on p. 495. Section **11.2** 20-30

Use the above formulas to find the sum of a finite or infinite geometric series, if possible. Section **11.3** 5-11, 16 and Section **11.4** 5-11, 19-21 (You may need to pull out a common factor as in **11.4** 5, 6, 8-11, 16c)

Determine the long run behavior of the effect of taking a therapeutic drug. See Quiz 9 and Section **11.3** 16 and Section **11.4** 19-21 **Ch 11 Review** #33.

### Ch 12 Parametric Equations and Conic Sections

Eliminate the parameter to write a parametric curve without  $t$  in implicit form or explicit form. See Quiz 10 and Section **12.1** 1-22, 28 and Section **12.2** 14-17, 20

Write circles, ellipses, and hyperbolas in implicit form. Section **12.1** 10-12, 17-18 and Section **12.2** 3, 14, 16 and Section **12.3** 1-10, 18, 19.

Write circles and ellipses in parametric form. Section **12.2** 5-11, and **12.3** 1-10

Sketch conics and find vertices, center, asymptotes, etc., where appropriate if given the equation. Section **12.3** 1-4 and Section **12.4** 1-4, 9, 10, 11a.

If given the equation, determine the focal points of a conic or a point on the curve. If given the focal points or a point on the curve, find the equation. Section **12.5** 1-22, 25-27, 30-33, 39, 40

### Ch 7 Polar Coordinates and Complex Numbers

Convert from cartesian coordinates to polar coordinates and vice versa.

- Points: Section **7.5** 1-21 odd, 31-37 odd
- Equations: Section **7.5** 22-29

Determine any intersection points of graphs involving polar coordinates: Section **7.5** 41