

ALGEBRA FOR CALCULUS Topics List for Chapters 10 and 11 Exam

Section 10.1/1.1

Be able to:

- Find the distance between any pair of points, providing an *exact answer* and also an approximation to three decimal places;
- Identify an equation determining a parabola;
- Find the equation of a parabola given its focus and directrix (like #15 – 20 on p. 839);
- Given an equation of a parabola, complete the square, then name the vertex, the focus, and the directrix (like #23 – 30 on p. 839);
- Solve an applied problem using parabolas (like #31 – 34 on p. 839).
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Section 10.2

Be able to:

- Identify an equation determining a circle;
- Identify an equation determining an ellipse;
- Given an equation of a circle, complete the square if necessary, then name center and radius; sketch an accurate graph (like #7 – 18 on p. 848);
- Given an equation of an ellipse, complete the square if necessary, then name the center, the vertices, and the foci; sketch an accurate graph (like 25 – 30 on p. 849);
- Solve applied problems using circles or ellipses (like #51 – 54 on pp. 849-850).

Section 10.3

Be able to:

- Identify an equation determining a hyperbola;
- Given an equation of a hyperbola, complete the square if necessary, then name center, the vertices, and the foci; sketch an accurate graph (like # 11 - 34 on pp. 859-860);
- Solve an applied problem using hyperbolas (like #39 or 40 on p. 860).

Section 11.1

Be able to:

- Find an indicated term of a sequence given a formula for the n^{th} term (# 1 – 18 on p.918);
- Find indicated partial sums for the sequence (#29 – 50);
- Convert between sigma notation and other notation for a series (#51-60);
- Construct the terms of a recursively defined sequence (like # 61-66).

Section 7.2

Be able to:

- Find the n^{th} term when n is given and n when the n^{th} term is given in an arithmetic sequence (like #8 – 21 on pp. 926-927)
- Given two terms of an arithmetic sequence, construct the sequence (like # 22-23 on p. 927)
- Find the sum of the first n terms of an arithmetic sequence (#24 – 37)
- Solve applied problems using arithmetic sequences or series (#39-45).

Section 7.3

Be able to:

- Identify the common ratio of a geometric sequence and find a given term of the sequence (like # 11-22 on p. 937)
- Find the sum of the first n terms of a geometric sequence (like # 23 – 26)
- Find the sum of an infinite geometric series (like #33 – 50)
- Solve applied problems using geometric sequences or series (#57- 61)