

Pre-Calculus 12  
Resource Exam A  
Answer Key

| Cognitive Processes | Weightings | Question Types                            |
|---------------------|------------|-------------------------------------------|
| N = Knowing         | 38%        | 14 = Multiple Choice (MC)                 |
| P = Applying        | 43%        | 30 = Multiple Choice – no calculator (MN) |
| Q = Reasoning       | 19%        | 6 = Written Response (WR)                 |

| Topics                     | Prescribed Learning Outcomes (PLOs) | Weightings |
|----------------------------|-------------------------------------|------------|
| 1. Trigonometry            | A                                   | 28%        |
| 2. Relations and Functions | B                                   | 61%        |
| 3. Combinatorics           | C                                   | 11%        |

**Part A: Multiple-Choice Questions (Calculator Permitted)**

| Question Number | Keyed Response | Cognitive Process | Mark | Topic | PLO | Question Type | Question Source | AI   | Diff |
|-----------------|----------------|-------------------|------|-------|-----|---------------|-----------------|------|------|
| 1.              | D              | N                 | 1.5  | 1     | A5  | MC            |                 | 5.3  | E    |
| 2.              | B              | P                 | 1.5  | 1     | A1  | MC            |                 | 1.9  | M    |
| 3.              | B              | P                 | 1.5  | 1     | A4  | MC            |                 | 4.11 | M    |
| 4.              | C              | N                 | 1.5  | 2     | B7  | MC            |                 | 7.3  | E    |
| 5.              | B              | P                 | 1.5  | 2     | B10 | MC            |                 | 10.8 | M    |
| 6.              | D              | P                 | 1.5  | 2     | B10 | MC            |                 | 10.7 | E    |
| 7.              | C              | N                 | 1.5  | 3     | C1  | MC            |                 | 1.1  | E    |
| 8.              | A              | P                 | 1.5  | 3     | C4  | MC            |                 | 4.6  | M    |
| 9.              | B              | P                 | 1.5  | 3     | C2  | MC            |                 | 2.1  | M    |
| 10.             | C              | P                 | 1.5  | 3     | C3  | MC            |                 | 3.3  | M    |
| 11.             | C              | Q                 | 1.5  | 3     | C2  | MC            |                 | 2.6  | H    |
| 12.             | C              | P                 | 1.5  | 2     | B11 | MC            |                 | 11.4 | M    |
| 13.             | B              | N                 | 1.5  | 2     | B14 | MC            |                 | 14.2 | E    |
| 14.             | D              | N                 | 1.5  | 2     | B3  | MC            |                 | 3.2  | E    |

**Part B: Multiple-Choice Questions (Calculator NOT Permitted)**

| Question Number | Keyed Response | Cognitive Process | Mark | Topic | PLO | Question Type | Question Source | AI       | Diff |
|-----------------|----------------|-------------------|------|-------|-----|---------------|-----------------|----------|------|
| 15.             | C              | N                 | 1.5  | 3     | C2  | MN            |                 | 2.2      | E    |
| 16.             | B              | M                 | 1.5  | 1     | A4  | MN            |                 | 4.8      | M    |
| 17.             | B              | N                 | 1.5  | 1     | A3  | MN            |                 | 3.3      | E    |
| 18.             | D              | N                 | 1.5  | 1     | A1  | MN            |                 | 1.5, 1.8 | M    |
| 19.             | A              | P                 | 1.5  | 1     | A6  | MN            |                 | 6.7      | H    |
| 20.             | A              | P                 | 1.5  | 1     | A2  | MN            |                 | 2.2      | M    |

| Question Number | Keyed Response | Cognitive Process | Mark | Topic | PLO | Question Type | Question Source | AI   | Diff |
|-----------------|----------------|-------------------|------|-------|-----|---------------|-----------------|------|------|
| 21.             | D              | N                 | 1.5  | 1     | A4  | MN            |                 | 4.9  | M    |
| 22.             | D              | P                 | 1.5  | 1     | A6  | MN            |                 | 6.5  | M    |
| 23.             | A              | Q                 | 1.5  | 1     | A5  | MN            |                 | 5.2  | M    |
| 24.             | B              | Q                 | 1.5  | 1     | A6  | MN            |                 | 6.6  | H    |
| 25.             | A              | N                 | 1.5  | 2     | B10 | MN            |                 | 10.1 | E    |
| 26.             | A              | N                 | 1.5  | 2     | B8  | MN            |                 | 8.3  | E    |
| 27.             | C              | N                 | 1.5  | 2     | B7  | MN            |                 | 7.3  | M    |
| 28.             | D              | Q                 | 1.5  | 2     | B8  | MN            |                 | 8.3  | M    |
| 29.             | A              | P                 | 1.5  | 2     | B9  | MN            |                 | 9.4  | H    |
| 30.             | A              | N                 | 1.5  | 2     | B6  | MN            |                 | 6.4  | M    |
| 31.             | D              | P                 | 1.5  | 2     | B4  | MN            |                 | 4.1  | M    |
| 32.             | C              | Q                 | 1.5  | 2     | B4  | MN            |                 | 4.1  | M    |
| 33.             | B              | N                 | 1.5  | 2     | B6  | MN            |                 | 6.3  | H    |
| 34.             | B              | P                 | 1.5  | 2     | B5  | MN            |                 | 5.2  | H    |
| 35.             | C              | N                 | 1.5  | 2     | B12 | MN            |                 | 12.1 | E    |
| 36.             | A              | N                 | 1.5  | 2     | B12 | MN            |                 | 12.2 | E    |
| 37.             | C              | P                 | 1.5  | 2     | B11 | MN            |                 | 11.5 | M    |
| 38.             | C              | Q                 | 1.5  | 2     | B11 | MN            |                 | 11.2 | H    |
| 39.             | C              | N                 | 1.5  | 2     | B1  | MN            |                 | 1.5  | E    |
| 40.             | A              | P                 | 1.5  | 2     | B1  | MN            |                 | 1.2  | M    |
| 41.             | D              | Q                 | 1.5  | 2     | B1  | MN            |                 | 1.8  | H    |
| 42.             | D              | Q                 | 1.5  | 2     | B13 | MN            |                 | 13.4 | E    |
| 43.             | A              | P                 | 1.5  | 2     | B13 | MN            |                 | 13.3 | M    |
| 44.             | B              | N                 | 1.5  | 2     | B13 | MN            |                 | 13.2 | E    |

| Question Number | Cognitive Process | Mark | Topic | PLO | Question Type | Question Source | AI   | Diff |
|-----------------|-------------------|------|-------|-----|---------------|-----------------|------|------|
| 1.              | P                 | 4    | 1     | A5  | WR            |                 | 5.2  | M    |
| 2.              | Q                 | 4    | 1     | A6  | WR            |                 | 6.6  | H    |
| 3.              | P                 | 4    | 2     | B4  | WR            |                 | 4.1  | E    |
| 4.              | P                 | 4    | 2     | B1  | WR            |                 | 1.1  | M    |
| 1.              | P                 | 4    | 2     | B10 | WR            |                 | 10.3 | M    |
| 2.              | P                 | 4    | 2     | B14 | WR            |                 | 14.4 | M    |