**APM20S – Outcomes by Cluster**

**Factors and Products:**

**A1** – Demonstrate an understanding of factors of whole numbers by determining prime factors, LCM, GCF, square roots and cube roots

**A4** – Demonstrate an understanding of the multiplication of polynomial expressions

**A5** – Demonstrate an understanding of common factors and trinomial factoring

**Roots and Powers:**

**A2** – Demonstrate an understanding of irrational numbers by representing, identifying and simplifying irrational numbers, and by ordering rational numbers

**A3** – Demonstrate an understanding of powers with integral and rational exponents

**Linear Relations:**

**R3** – Demonstrate an understanding of slope with respect to rise and run, line segments and lines, rate of change, parallel lines and perpendicular lines

**R5** – Determine the characteristics of the graphs of linear functions, including the intercepts, slope, domain and range

**R6** – Relate linear functions expressed in slope-intercept form, general form, and slope-point form to their graphs

**R7** – Determine the equation of a linear relation given a graph, a point and a slope, two points, or a point and an equation of a parallel or perpendicular line

**Functions and Relations:**

**R1** – Interpret and explain the relationship among data, graphs and contexts

**R2** – Demonstrate an understanding of relations and functions

**R4** – Describe and represent linear relations using words, ordered pairs, tables of values, graphs and equations

**R8** – Represent a linear function using function notation

**R10** – Solve problems that involve the distance between two points and the midpoint of a line segment

**Linear Systems:**

**R9** – Solve problems that involve systems of linear equations in two variables, graphically and algebraically

**Measurement:**

**M1** – Solve problems involving linear measurements using SI and imperial units of measure

**M2** – Apply proportional reasoning to problems involving conversions between SI and imperial units of measure

**M3** – Solve problems, using SI and imperial units that involve the surface area and volume of 3-D objects of right cones, right cylinders, right prisms, right pyramids, and spheres

**Trigonometry**

**M4** – Develop and apply the primary trigonometric rations to solve problems that involve right triangles

**Communication Errors**

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| E1 – Final Answer | Final Answer not stated |
| E2 – Variables | Variable omitted in an equation  Variables introduced without being defined |
| E3 – Units | Missing or Incorrect Units of Measure |
| E4 – Rounding | Rounding Error  Rounds early |
| E5 – Notation/Transcription | Notation or Transcription Error |
| E6 – Graphing | Incorrect or missing endpoints or arrowheads  Scale values on axes not indicated  Coordinate points labelled incorrectly |