Summer Math Review 2017

For Section 11 Accelerated

- *You should **not use a calculator** for this work.*
- *Work on a separate sheet of paper.*
- *Show all work.*

1. Evaluate:

   i. $3 + 4 \cdot 2 - 12 \div (-3)$

   ii. $1010 - (-101) - 1100$

2. Solve:

   i. $4x - 12 = 3(x - 2)$

   ii. $\frac{3}{x} = \frac{14}{x-11}$

   iii. $x^2 + 7x + 12 = 0$

   iv. $\frac{x+3}{4} + \frac{8}{x+3} = 3$

   v. $2x^2 = 4x - 3$

3. Identify the slope and y-intercept of the graph of each equation:

   i. $y = 7 - x$

   ii. $3x - 4y = 12$

4. I think of a number. I then multiply it by 6 and subtract 7 from the result. I divide what I get by 5 and end up with 1 less than the number I thought of. What number did I think of?

5. Graph each equation:

   i. $x = 4$

   ii. $y = 4 - x$

   iii. $2y + 3x = 12$

   iv. $y = x^2 - 9$

6. Simplify:

   i. $x^3 \cdot x^7$

   ii. $x^7 \div x^9$

   iii. $\frac{y^{-2}}{y^{-6}}$

   iv. $4a^3 \cdot 3a$

   v. $\frac{12b^{-4}}{18b^{-8}}$

   vi. $\sqrt{24x^5y^6z}$

   vii. $\frac{3}{x+5} + \frac{2}{x+1}$

   viii. $\frac{x^2-x-6}{x^2-7x+12}$

   ix. $\sqrt{98}$

   x. $\sqrt{2} + \sqrt{8} - \sqrt{18}$

   xi. $\frac{a^2+a^3}{a^{-2}}$

xii. $b^{\frac{5}{2}}\left(b^{\frac{1}{2}} - b^{-\frac{1}{2}}\right)$

xiii. $\left(\frac{c^2}{c^{\frac{3}{2}}}\right)^2$

xiv. $(2x + 5) - (3x - 3)$

xv. $(3x + 1)(5x - 4)$

7. Write each of the following as a single logarithm:

   i. $\log 5 + \log 6 - \log 15$

   ii. $3 - 2\log 5$

8. Solve each system without graphing:

   i. $x - 3y = 1$
      $2x + 2y = 18$

   ii. $4x - 5y = 5$
      $2x + 3y = 8$

9. Solve:

   i. $4x^3 - 9x = 0$

   ii. $3x^2 - 4x - 5 = 0$

   iii. $2x^2 + 32 = 0$

   iv. $2^x = 4096$

   v. $3^{2x-1} = 81$

10. Find the domain and range of the function defined by the equation $y = 5(4)^x$.

11. Complete the following sentence:
    A graph is not the graph of a function if two of its points are _____.

12. If $f(x) = 8 - x$ and $g(x) = x^2$, find $f(g(3))$.

13. The slope of the line through $(a + 2, 5)$ and $(3a - 1, 7)$ is $\frac{4}{3}$. Find the value of a.

14. Factor $48x^4 - 3$.

15. Find z, given that $(3x + 7)(3x + 7)(3x + 7)^z = (3x + 7)^9$.