

**Summer Math Review 2016**  
*For Section 11 College Prep*

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

1. Evaluate the following:

- a.  $2(-5)$
- b.  $(-2)(-5)$
- c.  $\frac{5}{-2}$
- d.  $\frac{-5}{-2}$
- e.  $(-5) + 2$
- f.  $(-5) + (-2)$
- g.  $(-5) - (-2)$
- h.  $-3 + (-7) + 5 + (-4) + (-6)$
- i.  $12 - (-22) + (-2) - 32$

2. Evaluate:

- a.  $\frac{2}{3} + \frac{3}{4}$
- b.  $\frac{2}{3} - \frac{3}{4}$
- c.  $\frac{2}{3} \cdot \frac{3}{4}$
- d.  $\frac{2}{3} \div \frac{3}{4}$

3. Solve the following equations:

- a.  $2x + 3 = 7$
- b.  $3(x - 2) = 15$
- c.  $\frac{1}{3}x - 4 = 3$
- d.  $x^2 = 9$

4.

- a. Find the slope of the line that connects the points (3,1) and (5,-3).
- b. Find an equation of the line that connects the points (3,1) and (5,-3).
- c. What is the slope of a line perpendicular to this line?

5. Simplify the following:

- a.  $x^3 \cdot x^5$
- b.  $\frac{x^7}{x^4}$
- c.  $(x^3)^4$
- d.  $(2x)^3$
- e.  $\left(\frac{2}{3}\right)^2$

6. Simplify the following expressions:

- a.  $(2x + 5) - (3x - 3)$
- b.  $(3x + 1)(5x - 4)$
- c.  $(5x^2 + 4x + 2) - (2x^2 + 6x - 1)$
- d.  $3(2x - 1) + 4(3x + 4)$

7. Factor:

- a.  $x^2 - 4x - 12$
- b.  $3x^3 - 12x^2$

8. Use your answer to 7a. to solve the equation  $x^2 - 4x - 12 = 0$ .

9. A rectangle has a length of  $2x - 1$  and a width of  $x + 3$ . Find the area of the rectangle in terms of  $x$ .

10. Write an equation that expresses the following sentence:  $y$  is two less than three times a number  $x$ .

11. Graph the following equations:

a.  $y = 2$

b.  $x = -1$

c.  $y = 2x - 1$

d.  $y = x^2 - 2x - 3$

12. Given  $f(x) = x^2 - x + 1$ ,

i. evaluate  $f(3)$

ii. find the values of  $x$  that make  $f(x) = 1$

13. Use the quadratic formula to solve  $x^2 - 4x + 2 = 0$ .

14. Solve the equation  $x^2 - 3 = 6$ .

15. Simplify.

a.  $4 + 6 \cdot 2 - 5$

b.  $25 - 10 \div 2$

c.  $3 + (5 - 2) + 6^2$

d.  $\frac{4^2 - 20 \div 5}{1 - 5 + 7}$

e.  $3[2 + (5 + 2^3)]$

f.  $(3^2 - 4^2)^2$

16. Evaluate

a.  $8x^2 + x - 9$  for  $x = 2$

b.  $14x - (2y + z)$  for  $x = 3, y = 4, z = 5$

c.  $\frac{21xy}{x+y}$  for  $x = 3, y = 4$