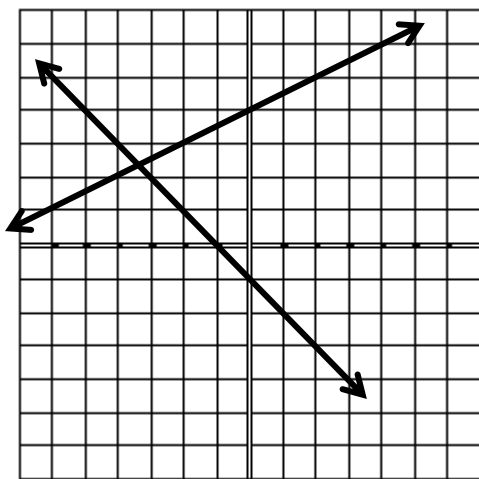


## Answers to MA 15910 Review Worksheet for Exam 1, Spring 2015

- 1) a) 4 terms, degree 3, leading term is  $-x^3$   
 b) 5 terms, degree 4, leading term is  $n^4$
- 2)  $5x + 9xy + 6x^2y - 10xy^2$
- 3) a)  $4a^2 + 2a - 8$       b)  $2n^3 + 12n^2 - 5n + 5$   
 c)  $\frac{13}{12}a + \frac{22}{15}$
- 4)  $15r + 13$
- 5) a) It is not a function.       $D = \{-3, -1, 0, 1, 2, 3, 5, 9\}$        $R = \{-6, 0, 1, 2, 4, 5, 8, 10\}$   
 b) It is a function.       $D = [0, 4]$        $R = [-2, 2]$   
 c) It is a function.       $D = (-\infty, \infty)$        $R = [0, \infty)$   
 d) It is a function.       $D = [5, \infty)$        $R = [0, \infty)$   
 e) It is a function.       $D = (-\infty, 2) \cup (2, \infty)$   
 f) It is not a function.       $D = [0, \infty)$        $R = (-\infty, \infty)$
- 6) a)  $f(3) = 7$       b)  $g(-1) = 1$   
 c)  $h(3a - 2) = \frac{6a + 1}{9a - 7}$       d)  $f(-15) = 241$   
 e)  $g(3) = 3$       f)  $h\left(\frac{1}{3}\right)$  is not a real number
- 7) a)  $F(3\pi) = -5\pi$       b)  $F(h - 4\pi) = -2h + 9\pi$
- 8) a)  $g(-1) = 2$       b)  $x = -1$       c)  $g\left(\frac{1}{2}\right) = 5$



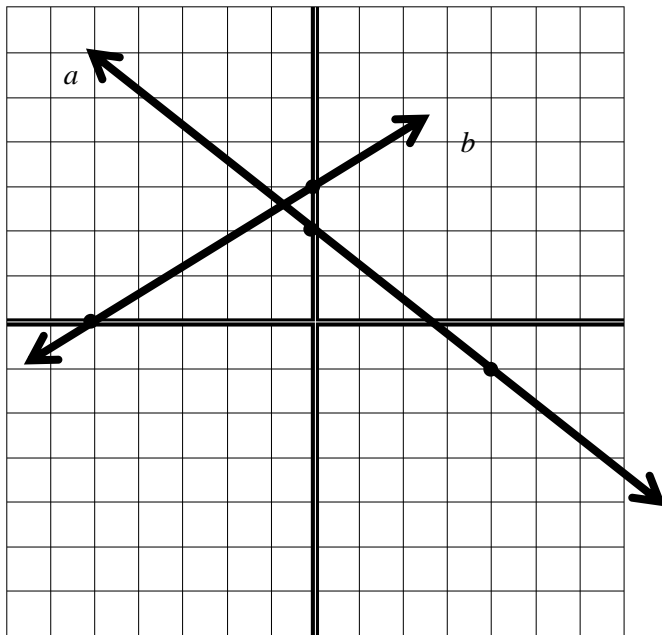
The scale on each axis is 1 unit per hash mark. Graph for part (a) is the line with the positive slope (rising) and the graph for part (b) is the line with the negative slope (falling).

- 9)
- 10) 164.98 centimeters
- 11)  $6y^6 - 12y^5 + 27y^4 - 21y^3 - 18y^2$
- 12)  $12a^2 - 11a - 36$

- 13)  $90x^3 - 135x^2 + 50x$
- 14)  $12n^3 + 5n^2 + 5n + 6$
- 15)  $24x^3 - 32x^2 + 28x - 15$
- 16) a)  $36x^2 - \frac{1}{4}$       b)  $144x^2 - 120x + 25$
- 17)  $8x^3 + 34x^2 + 5x - 12$
- 18) Area =  $4x^2 + 11x - 41$
- 19) Volume =  $2x^3 + 31x^2 + 110x - 63$
- 20)  $x = \frac{48}{7}$
- 21)  $x = -\frac{5}{2}$       22)  $x = 130$
- 23)  $x = 7$       24)  $x = \frac{5}{2}$
- 25)  $t = -15$       26) no solution
- 27) \$4000 was invested in the bond.
- 28) 40 mL of the 6% solution was added.
- 29) The car had been following the truck for  $\frac{13}{14}$  hours or approximately 55.7 minutes.
- 30) Distance is 2 miles.
- 31) Helen's time alone is  $\frac{2}{3}$  hour or 40 minutes.
- 32)  $x = \frac{5}{2}, -\frac{2}{3}$       33)  $x = \frac{5}{2} + \frac{\sqrt{13}}{2}, \frac{5}{2} - \frac{\sqrt{13}}{2}$
- 34)  $x = \frac{1}{7}$  only      35)  $x = -\frac{5}{6} + \frac{\sqrt{13}}{6}, -\frac{5}{6} - \frac{\sqrt{13}}{6}$
- 36) 2 feet wide walkway      37) 5 feet
- 38) newer worker: about 11.1 hours to clean the building alone
- 39) A      (a)  $m = \frac{9}{8}$       (b)  $9x - 8y = -19$
- B      (a)  $m = \frac{7}{5}$       (b)  $14x - 10y = 1$

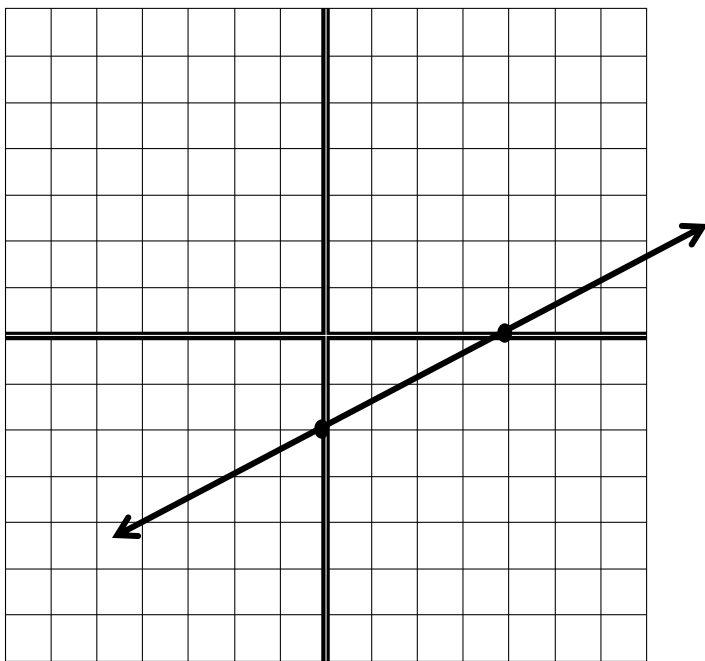
40) vertical:  $x = 5$ , horizontal:  $y = 3$

41) (left to right) negative, zero, undefined, positive



42)

43) x-intercept:  $(4, 0)$ , y-intercept:  $(0, -2)$



45)  $2x + 3y = 6$

46)  $y = -\frac{5}{6}x + \frac{31}{6}$

47) (a)  $M = 60x + 165$

(b) \$345

48) a)  $m = \frac{28}{5}$   
b)  $P = \frac{28}{5}t + 9$   
c) 65%