

Test Name: MA120&125 Sample Final (Starting Spring 2014)

1.  $(a + y)(r + u)$
2. A.  $x = \frac{-9}{10}$
3. D.  $x = 2$
4.  $x$ -intercept:  $(-3,0)$   
 $y$ -intercept:  $(0,-6)$
5.  $x = \frac{-7}{2}, \frac{7}{2}$
6.  $f(4) = 85$
7.  $x = -6, 0$
8.  $(-1, -8)$
9.  $\frac{\sqrt{21}}{3}$
10. 15 hours
11.  $u = -1, -2$
12.  $t = 2$
13. D.  $x = 20$
14. C.  $\frac{1}{16}$
15.  $-5 + \sqrt{11}, -5 - \sqrt{11}$
16.  $-6 - 17i$
17. C.  $x = -6, \frac{5}{3}$
18. *Going: 45 mph, Returning: 36 mph*
19.  $x = 0, \frac{-3}{7}$
20.  $t = 8$
21.  $-6\sqrt{5}$
22.  $y = 3x - 4$
23.  $(3, -4)$
24.  $(1, 8)$
25.  $(5x + 4y)(5x + 4y)$  or  $(5x + 4y)^2$
26. Not factorable

27.  $3(3y - 4)(9y^2 + 12y + 16)$
28.  $y = \frac{1}{3}x - \frac{2}{3}$
29.  $7xy(x + 2y^2)$
30.  $x = -10$
31.  $2x^3y^3\sqrt{2y^2}$
32. Sam invested \$1500 at 7% and \$3500 at 13%.
33. B.  $4 - 16i$
34.  $y = 3.85$
35.  $(a + 4b)(a - 6b)$
36. 783 general admission and 268 reserved seating tickets were sold.
37. C. Parallel slope:  $-\frac{3}{5}$ , Perpendicular slope:  $\frac{5}{3}$
38.  $(4x + 5)(x + 4)$
39.  $y = 3 + 2\sqrt{3}$ ,  $3 - 2\sqrt{3}$
40. B.  $\frac{8}{65} - \frac{79}{65}i$
41.  $y = 3$
42. D.  $x = -4$ ,  $\frac{-2}{9}$
43.  $(4x + 3)(16x^2 - 12x + 9)$
44.  $4\sqrt{6}$
45. **Step 1:**  $\frac{20 \text{ light bulbs}}{6 \text{ defective light bulbs}} = \frac{4800 \text{ light bulbs}}{x}$   
**Step 2:**  $x = 1440$  defective light bulbs
46. Add 30 liters of 25% acid solution and 30 liters of 35% acid solution.
47.  $24 + 3\sqrt{42}$
48.  $x = \frac{5 + i\sqrt{23}}{12}$ ,  $\frac{5 - i\sqrt{23}}{12}$
49.  $3(x + 3)(3x + 4)$
50. **Step 1:** No  
**Step 2: Domain:**  $[-8, -2]$  or  $\{x \mid -8 \leq x \leq -2\}$   
**Range:**  $[-9, -5]$  or  $\{y \mid -9 \leq y \leq -5\}$

51.  $x = \frac{-1 + \sqrt{65}}{2}, \frac{-1 - \sqrt{65}}{2}$

52.  $(4y + 5)(3y^2 - 1)$

53.  $(3x + 2)(3x - 2)$

54.  $x = 2\sqrt{2}, -2\sqrt{2}$

55. **Step 1.**  $\frac{13 \text{ hours}}{676 \text{ miles}} = \frac{x \text{ hours}}{312 \text{ miles}}$

**Step 2.** It would take 6 hours.

56.  $(x + 5)(x + 6)$

57. The volume is 212 cubic inches.

58.  $\frac{28 + 4\sqrt{6}}{43}$

59.  $\frac{6}{5}$

60. B. 9 mph

61.  $(3, -7)$

62. The object falls 135 feet.

63.  $7x^3(x - 2)(x - 3)$

64. The numbers are 6 and 4.

65.  $x = -4 \pm 3\sqrt{2}$

