

Test Name: MA 120& 125 Sample Final (Starting Spring 2012)

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. $2x^3y^3\sqrt[3]{2y^2}$
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.