**Algebra 2 over 2 Years AB**

**Answer Key**

|  |  |
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| 1. y = x + 4
2. $A= \frac{8BC}{7}$
3. $f=35-d$
4. y > 1, y < $-\frac{1}{2}$x+1, y < x + 8
5. see student answer
6. b
7. .80x is eighty cents, the price of bagels, multiplied by the number of bagels; 1.50y is the price of muffins multiplied by the number of muffins; $12 is the maximum Sam can spend; < tells you that what he spends must be les than $12.
8. see graph
9. 2 bagels and 1 muffin, 4 bagels and 2 muffins, or 6 bagels and 3 muffins are some possible answers
10. x > 200, y > 150, x + y < 850
11. 12x + 15y > 240, see graph
12. $13,000
13. 43
14. (-8, 4)
15. no solution
16. (-3, 2)
17. (1, 6)
18. $f\left(x\right)=\left\{\begin{array}{c}-\frac{1}{2}x+1.5, \&x\leq 1\\-x+3, \&x>1\end{array}\right.$
19. $f\left(x\right)=\left\{\begin{array}{c}3x+6, \&x<-1\\-1, \&x\geq -1\end{array}\right.$
20. $f\left(x\right)=\left\{\begin{array}{c}x, \&x\leq 0\\2x, \&x>0\end{array}\right.$
21. 10 < x < 30
22. see student answer
23. Before the break-even point, the company is not making any profit because sales are less than costs. At the break-even point, sales have “caught up to” costs so they are equal. After the break-even point, the company starts to make money from the sale of the toy.
24. There are infinitely many right answers for this question. The most common answer will probably be to multiply the first equation by 3 and the second equation by 5.
25. $18 for Power Bars and $10 for a jar of Creatine
26. 12 McDonald’s coupons and 8 Burger King coupons
27. see student work, see student work, see student work, impossible
28. no, yes, yes, no, no, yes
29. C
30. $8i\sqrt{2}$
31. $\frac{-6+15i}{-25}$
32. $\frac{3-10i}{5}$
33. 600
34. 120$i$
35. 17 + 31$i$
36. 10
37. y = 2(x – 4)2 + 1
38. f(x) = (x + 5)2 – 17
39. -3 $\pm \sqrt{2}$
40. 2$ \pm i$
41. -6
42. 1
43. 2 real solutions
44. one real solution
45. complex solutions
46. complex solutions
47. B and C
48. y = $-\frac{1}{7}$(x – 40)2 + 72, y < 72
49. 0 seconds, 800 feet, 7.07 seconds

1. f(x) = (x + 2)(4x – 3)

1. b
2. {0, 4}
3. {2, 5}
4. y = (x – 1)2 – 7, y = x2 + 3
5. see diagram
6. see diagram
7. (x + 6)2 + (x – 3)2 = 49
8. (x – 2)2 + y2 = 6
9. (x + 6)2 + (y + 8)2 = 10, on the circle
 | (15, 0)(0, 8) |