Chapter 6 Review

Part 1

    2.

Time | Rate
———|———
0 | 525
1 | 700
3 | 800
4 | 1050
6 | 1350
7 | 1500
9 | 2000
12 | 2800

a = 1(525+700)/2 + 2(800+1050)/2 + 1(1350+1500)/2 + 3(2000+2800)/2
a = 11087.5

Part 2

    1. $\int[0, 1]$ (3x) dx
        F(x) = 3x^2/2
        $\int$ = F(1) - F(0)
        $\int$ = 1.5

    2. $\int[-2, 3]$ (x - 5) dx
        F(x) = x^2/2 - 5x
        $\int$ = F(3) - F(-2)
        $\int$ = -22.5

    3. $\int[-1, 4]$ (x^2 + 2x - 1) dx
        F(x) = x^3/3 + x^2 - x
        $\int$ = F(4) - F(-1)
        $\int$ = 31 & 2/3

    4. $\int[0, 2]$ (2x - 5)^2 dx
        F(x) = 4x^3/3 - 10x^2 + 25x
        $\int$ = F(2) - F(0)
        $\int$ = 4 & 2/3

    5. $\int[2, 3]$ (4/x^2 + 1) dx
        F(x) = x - 4/x
        $\int$ = F(3) - F(2)
        $\int$ = 1 & 2/3

    6. $\int[-2, -1]$ (x - 1/x^2) dx
        F(x) = x^2/2 + 1/x
        $\int$ = F(-1) - F(-2)
        $\int$ = -2

7. ∫[1, 9] ((x - 2) / (√x)) dx
   F(x) = 2/3 * (x - 6) √x
   ∫ = F(9) - F(1)
   ∫ = 9 & 1/3

8. ∫[-2, 2] (^3√x) dx
   F(x) = (3x ^3√x) / 4
   ∫ = F(2) - F(-2)
   ∫ = 0

9. ∫[0, 1] (t^(2/3) - t^(1/3)) dt
   F(x) = (3t^(5/3) / 5) - (3t^(4/3) / 4)
   ∫ = F(1) - F(0)
   ∫ = -0.15

10. ∫[0, 3] (|x - 2|) dx
    F(x) = ...?

11. ∫[-π/2, π/2] (cos(x)) dx
    F(x) = sin(x)
    ∫ = F(π/2) - F(-π/2)
    ∫ = 2

12. ∫[0, π] (2x - sin(x)) dx
    F(x) = x^2 + cos(x)
    ∫ = F(π) - F(0)
    ∫ = 2.5π

13. ∫[0, π/2] (3sin(x) - 2cos(x)) dx
    F(x) = -2sin(x) - 3cos(x)
    ∫ = F(π/2) - F(0)
    ∫ = 1

14. ∫[0, π/4] (x - sec^2(x)) dx
    F(x) = 1/2 * (x^2 - 2tan(x))
    ∫ = F(π/4) - F(0)
    ∫ = -0.692

15. ∫[0, π/3] (sec(θ) tan(θ)) dx
    F(x) = sec(θ)
    ∫ = F(π/3) - F(0)
    ∫ = 1