

$$\textcircled{1} \quad a_1 = 32.5 \quad d = 7.5$$

$$a_n = 7.5n + 25$$

$$85 = 7.5n + 25$$

$$60 = 7.5n \quad \boxed{n = 8 \text{ months}}$$

$$\textcircled{2} \quad a_1 = 20000$$

$$d = 1750$$

$$a_n = 20000 + (n-1)(1750)$$

$$\boxed{a_8 = 32250}$$

$$a_8 = 20000 + 7(1750)$$

$$a_8 = 20000 + 12250$$

$$\textcircled{3} \quad a_1 = 15 \quad d = -1$$

$$a_n = -n + 16$$

$$a_{15} = 1$$

$$S_{15} = 15 \left( \frac{15+1}{2} \right)$$

$$S_{15} = 15(8)$$

$$\boxed{S_{15} = 120}$$

$$\textcircled{4} \quad \text{c) } a_1 = 1 \quad d = .75$$

$$a_n = .75n + .25$$

$$a_{19} = .75(19) + .25$$

$$\boxed{a_{19} = \$14.50}$$

$$\text{d) } a_n = .75n + .25$$

$$a_{31} = .75(31) + .25$$

$$a_{31} = 23.5$$

$$S_{31} = 31 \left( \frac{1+23.5}{2} \right)$$

$$S_{31} = 31(12.25)$$

$$\boxed{S_{31} = \$379.75}$$

$$\textcircled{5} \quad a_1 = 25 \quad d = 2$$

$$a_n = 2d + 23$$

$$a_{20} = 2(20) + 23$$

$$a_{20} = 63$$

$$S_{20} = 20 \left( \frac{25+63}{2} \right)$$

$$S_{20} = 10(88)$$

$$S_{20} = 880$$

$$880 \times 2300 =$$

$$\boxed{\$2,024,000}$$

$$⑥ \quad a_1 = 1 \quad d = 1$$

$$a_n = n$$

$$SS = n \left( \frac{1+n}{2} \right)$$

$$110 = n(1+n)$$

$$110 = n^2 + n$$

$$0 = n^2 + n - 110$$

$$0 = (n+11)(n-10)$$

$$n = -11, 10$$

10 blocks

$$⑦ \quad a_1 = 26 \quad d = 4$$

$$a_n = 4d + 22$$

$$a_{32} = 4(32) + 22$$

$$a_{32} = 150$$

$$S_{32} = 32 \left( \frac{26 + 150}{2} \right)$$

$$S_{32} = 16(176)$$

$$S_{32} = 2816 \text{ cents}$$

$$⑧ \quad a_1 = 250 \quad d = 50$$

$$a_n = 50n + 200$$

$$a_{750} = 50(750) + 200$$

$$a_{750} = \$37,700$$

$$a_n = 50n + 200$$

$$a_{400} = 50(800) + 200$$

$$a_{800} = 40,200$$

$$S_{800} = 800 \left( \frac{250 + 40,200}{2} \right)$$

$$S_{800} = 400(40450)$$

$$S_{800} = \$16,180,000$$