

105: 5, 7.5, 10, 12.5, 15, 17.5, 20, 22.5, 25, 27.5 ; 20, 17, 14, 11, 8, 5, 2, -1, -4, -7

106: $S_3 = S_1 + 2d \Rightarrow 9 = 6 + 2d \Rightarrow d = 1.5$; $S_n = 6 + (n-1) \cdot 1.5 \Rightarrow S_n = 1.5n + 4.5$

107: $C_5 = C_1 + 4d \Rightarrow 9 = 17 + 4d \Rightarrow d = -2$

$$S_{20} = \frac{20(C_1 + C_{20})}{2} = 10(17 + 17 + 19 \cdot (-2)) = -40$$

108: $a_{10} + a_{11} + \dots + a_{20} = S_{20} - S_9 = \frac{20(4 + 4 + 3 \cdot 19)}{2} - \frac{9(4 + 4 + 3 \cdot 8)}{2} = 506$

109: $a_n = 2n - 1$; $S_{50} = \frac{50(a_1 + a_{50})}{2} = 25(1 + 99) = 2500$

110: a) $S_{15} = \frac{15(a_1 + a_{15})}{2} = 7.5 \cdot (5 + 5 + 14 \cdot 5) = 600$

b) $d = 2$; $b_{40} = b_1 + 39 \cdot d = 5 + 39 \cdot 2 = 83$; $S_{40} = \frac{40 \cdot (5 + 83)}{2} = 1760$

c) $d = 7$; $S_{32} = \frac{32(C_1 + C_{32})}{2} = 16(5 + 5 + 31 \cdot 7) = 3632$

111: 125, 50, 20, 8, $3\frac{1}{2}$, 1.28, 0.512, ...

112: $a_3 = a_1 \cdot r^2 \Rightarrow 0.9 = 0.625 \cdot r^2 \Rightarrow r = \pm 1.2$

• Si $r = 1.2$: 0.625, 0.75, 0.9, 1.08, 1.296, 1.5552

• Si $r = -1.2$: 0.625, -0.75, 0.9, -1.08, 1.296, -1.5552

113: $a_3 = a_1 \cdot r^2 \Rightarrow 6 = 2r^2 \Rightarrow r = \sqrt{3}$; $a_n = 2 \cdot (\sqrt{3})^{n-1}$; $a_{11} = 2 \cdot (\sqrt{3})^{10} = 2 \cdot 3^5 = 486$

114: $a_n = 5 \cdot 14^n < 1000000$; $14^n < 200000 \Rightarrow n = 36$; $a_{12} = 486\sqrt{3}$

115: $a_n = 1000 \cdot 0.8^n > 1$; $0.8^n > 0.001 \Rightarrow n = 30$

116: $r = 2$; $a_6 = a_1 \cdot r^5 = 250 \cdot 2^5 = 8000$; $a_n = 250 \cdot 2^{n-1}$

117: $a_3 = a_1 \cdot r^2 \Rightarrow 400 = 625r^2 \Rightarrow r = \pm 0.8$

• $r = 0.8$: 625, 500, 400, 320, 256, 204.8, ... // $r = -0.8$: 625, -500, 400, -320, 256, -204.8, ...

118: $a_3 = a_1 r^2 \Rightarrow 6 = 3r^2 \Rightarrow r = \sqrt{2}$; $a_n = 3(\sqrt{2})^{n-1}$; $a_{20} = 3(\sqrt{2})^{19} = 1536\sqrt{2}$; $a_{21} = 3072$

119: $a_n = 3 \cdot 2^{n-1}$; $384 = 3 \cdot 2^{n-1} \Rightarrow 2^{n-1} = 128 \Rightarrow n-1 = 7 \Rightarrow n = 8$

$$S_8 = \frac{a_1(r^8 - 1)}{r - 1} = \frac{3(2^8 - 1)}{2 - 1} = 765$$

120: $S_{16} = \frac{a_1(r^{16} - 1)}{r - 1} = \frac{1 \cdot (2^{16} - 1)}{2 - 1} = 65535$ denarios

121: $S_{10} = \frac{8192 \cdot (25^{10} - 1)}{25 - 1} = 52077'872$

122: $S_{\infty} = \frac{a_1}{1 - r} = \frac{8}{1 - 0.75} = 4$