

$$a_n = 15$$

$$a_1 = -21$$

$$15 + a_1 + nd + a_1 + (n+1)d = 54$$

$$a_n = a_1 + (n-1)d$$

$$-21 + 2nd + d = 54$$

$$36 = (n-1)d$$

$$2nd + d = 81$$

$$d = \frac{36}{n-1}$$

$$a_5 = a_1 + 4d$$

$$d(2n+1) = 81$$

$$a_5 = -21 + 4d$$

$$\frac{36}{n-1} (2n+1) = 81$$

$$a_9 = -21 + 8d$$

$$\frac{2n+1}{n-1} = 2.25$$

$$d = +4d$$

$$2n+1 = 2.25n - 2.25$$

$$S_n = \frac{n}{2} (2a_1 + (n-1)d)$$

$$0.75n = 3.25$$

$$450 = \frac{n}{2} (2(-21 + 4d) + (n-1) \cdot 4d)$$

$$n = 13$$

$$a_{13} = 15 = a_1 + 12d$$

$$450 = \frac{n}{2} [-42 + 8d + 4dn - 4d]$$

$$450 = \frac{n}{2} [2 \cdot -9 + (n-1) \cdot 12]$$

$$a_9 = a_1 + 8d = -21 + 12 = -9$$

$$a_2 = 3$$

$$a_9 = a_1 + 8d = -21 + 12 = -9$$

$$a_3 = 15$$

$$a_{13} = a_1 + 12d = 15$$

$$450 = \frac{n}{2} [-18 - 12 + 12n]$$

$$450 = -15n + 6n^2$$

$$5 + \sqrt{25 + 1200} = \frac{5 \pm 35}{n}$$

$$150 = -5n + 2n^2$$

$$2n^2 - 5n - 150 = 0$$