Predator-Prey Model Answer Key

$N_{n+1} = 1.5\left(1 - \frac{50}{100}\right)50 + 50 - 3 \times 50 \times 0.2 = \boxed{57.5}$

$P_{n+1} = 0.02 \times 50 \times 0.2 = \boxed{0.2}$

$N_2 = 1.5\left(1 - \frac{57.5}{100}\right)57.5 + 57.5 - 3 \times 57.5 \times 0.2 = \boxed{59.7}$

$P_2 = 0.02 \times 57.5 \times 0.2 = \boxed{0.23}$

$N_3 = 1.5\left(1 - \frac{59.7}{100}\right)59.7 + 59.7 - 3 \times 59.7 \times 0.23 = \boxed{54.6}$

$P_3 = 0.02 \times 59.7 \times 0.23 = \boxed{0.27}$

$N_4 = 1.5\left(1 - \frac{54.6}{100}\right)54.6 + 54.6 - 3 \times 54.6 \times 0.27 = \boxed{47.6}$

$P_4 = 0.02 \times 54.6 \times 0.27 = \boxed{0.29}$

$N_5 = 1.5\left(1 - \frac{47.6}{100}\right)47.6 + 47.6 - 3 \times 47.6 \times 0.29 = \boxed{43.6}$

$P_5 = 0.02 \times 47.6 \times 0.29 = \boxed{0.28}$

$N_6 = 1.5\left(1 - \frac{43.6}{100}\right)43.6 + 43.6 - 3 \times 43.6 \times 0.28 = \boxed{43.9}$

$P_6 = 0.02 \times 43.6 \times 0.28 = \boxed{0.24}$

$N_7 = 1.5\left(1 - \frac{43.9}{100}\right)43.9 + 43.9 - 3 \times 43.9 \times 0.24 = \boxed{49.2}$

$P_7 = 0.02 \times 43.9 \times 0.24 = \boxed{0.21}$

$N_8 = 1.5\left(1 - \frac{49.2}{100}\right)49.2 + 49.2 - 3 \times 49.2 \times 0.21 = \boxed{55.7}$

$P_8 = 0.02 \times 49.2 \times 0.21 = \boxed{0.21}$

$$N_9 = 1.5\left(1 - \frac{55.7}{100}\right) 55.7 + 55.7 - 3 \times 55.7 \times 0.21 = \boxed{57.6}$$

$$P_9 = 0.02 \times 55.7 \times 0.21 = \boxed{0.23}$$

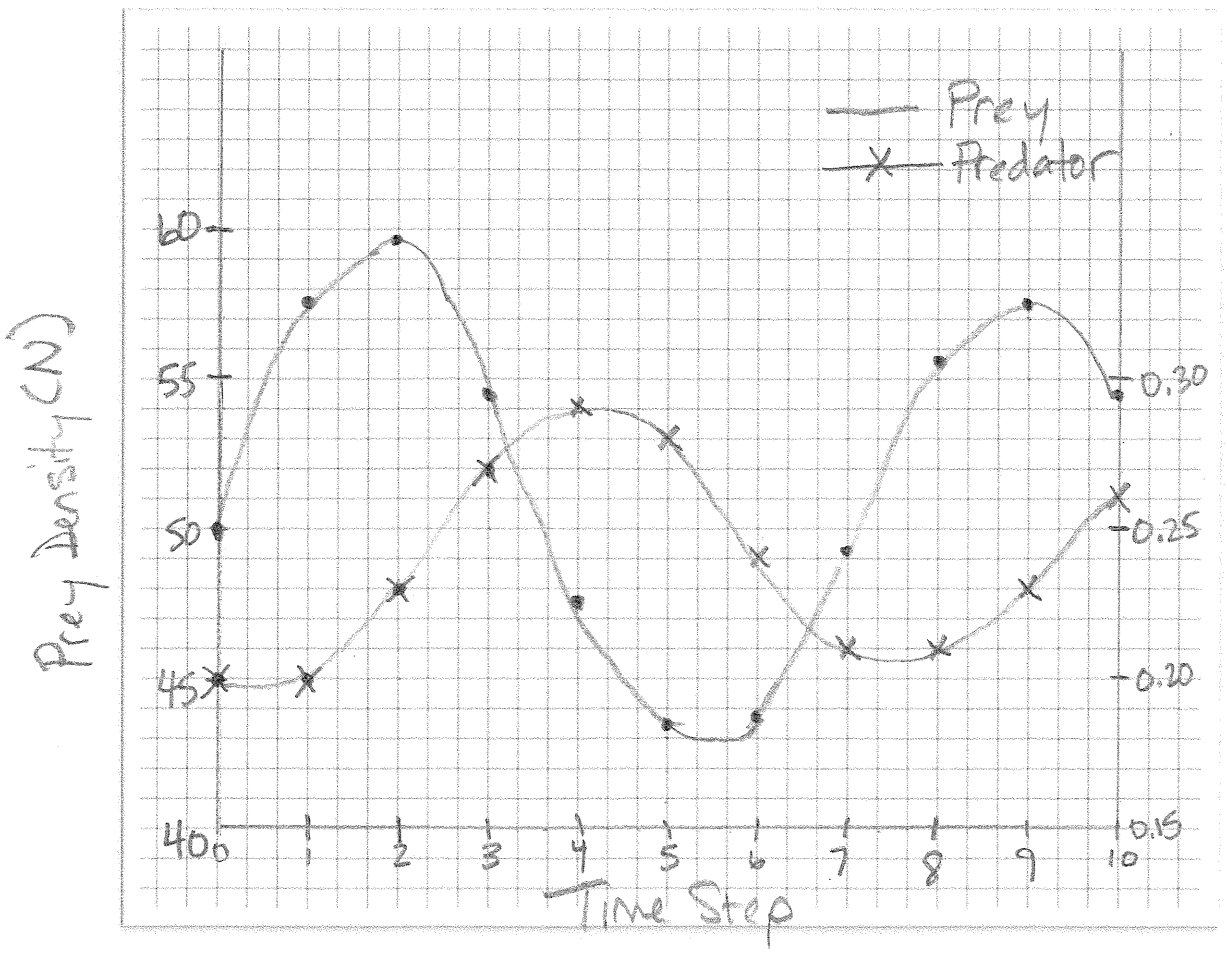
$$N_{10} = 1.5\left(1 - \frac{57.6}{100}\right) 57.6 + 57.6 - 3 \times 57.6 \times 0.23 = \boxed{54.5}$$

$$P_{10} = 0.02 \times 57.6 \times 0.23 = \boxed{0.26}$$

Table It:

Time Step (n)	N (Prey Population)	P (Predator Density)
0	50	0.20
1	57.5	0.20
2	59.7	0.23
3	54.6	0.27
4	47.6	0.29
5	43.6	0.28
6	43.9	0.24
7	49.2	0.21
8	55.7	0.21
9	57.6	0.23
10	54.5	0.26

Graph It:



Don't forget to create a legend and label your axes