Answer Key · Lesson 4.5: Writing Sinusoidal Equations

School Launch · Trigonometry · Unit 4 · Worksheet A · for the parent

Key

1. $h(t) = \cos\left(\frac{\pi}{3}t\right) + 13$

A tide varies between a high of 14 ft and a low of 12 ft with period 6 hours, high at $t = 0$. Write $h(t) = A\cos(Bt) + D$.

2. $h(t) = 3\cos\left(\frac{\pi}{12}t\right) + 4$

A tide varies between a high of 7 ft and a low of 1 ft with period 24 hours, high at $t = 0$. Write $h(t) = A\cos(Bt) + D$.

3. $h(t) = 6\cos\left(\frac{\pi}{3}t\right) + 1$

A tide varies between a high of 7 ft and a low of -5 ft with period 6 hours, high at $t = 0$. Write $h(t) = A\cos(Bt) + D$.

4. $h(t) = 3\cos\left(\frac{\pi}{3}t\right) + 15$

1. $A = \dfrac{18 - 12}{2} = 3$, $D = \dfrac{18 + 12}{2} = 15$
2. $B = \dfrac{2\pi}{6} = \dfrac{\pi}{3}$

A tide varies between a high of 18 ft and a low of 12 ft with period 6 hours, high at $t = 0$. Write $h(t) = A\cos(Bt) + D$.

5. $h(t) = 3\cos\left(\frac{\pi}{3}t\right) + 9$

1. $A = \dfrac{12 - 6}{2} = 3$, $D = \dfrac{12 + 6}{2} = 9$
2. $B = \dfrac{2\pi}{6} = \dfrac{\pi}{3}$

A tide varies between a high of 12 ft and a low of 6 ft with period 6 hours, high at $t = 0$. Write $h(t) = A\cos(Bt) + D$.

6. $h(t) = 3\cos\left(\frac{\pi}{12}t\right) + 5$

1. $A = \frac{\max - \min}{2}$, $D = \frac{\max + \min}{2}$.
2. $B = \frac{2\pi}{\text{period}}$.

A tide varies between a high of 8 ft and a low of 2 ft with period 24 hours, high at $t = 0$. Write $h(t) = A\cos(Bt) + D$.

7. $h(t) = 2\cos\left(\frac{\pi}{5}t\right) + 3$

1. $A = \frac{\max - \min}{2}$, $D = \frac{\max + \min}{2}$.
2. $B = \frac{2\pi}{\text{period}}$.

A tide varies between a high of 5 ft and a low of 1 ft with period 10 hours, high at $t = 0$. Write $h(t) = A\cos(Bt) + D$.

8. $h(t) = \cos\left(\frac{\pi}{12}t\right) + 17$

1. $A = \dfrac{18 - 16}{2} = 1$, $D = \dfrac{18 + 16}{2} = 17$
2. $B = \dfrac{2\pi}{24} = \dfrac{\pi}{12}$

A tide varies between a high of 18 ft and a low of 16 ft with period 24 hours, high at $t = 0$. Write $h(t) = A\cos(Bt) + D$.

9. $h(t) = 3\cos\left(\frac{\pi}{6}t\right) + 14$

1. $A = \dfrac{17 - 11}{2} = 3$, $D = \dfrac{17 + 11}{2} = 14$
2. $B = \dfrac{2\pi}{12} = \dfrac{\pi}{6}$

A tide varies between a high of 17 ft and a low of 11 ft with period 12 hours, high at $t = 0$. Write $h(t) = A\cos(Bt) + D$.

10. $h(t) = \cos\left(\frac{\pi}{2}t\right) + 12$

1. $A = \frac{\max - \min}{2}$, $D = \frac{\max + \min}{2}$.
2. $B = \frac{2\pi}{\text{period}}$.

A tide varies between a high of 13 ft and a low of 11 ft with period 4 hours, high at $t = 0$. Write $h(t) = A\cos(Bt) + D$.