Answer Key · Lesson 4.6: The Graph of Tangent

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

Key

1. period π; $x = \frac{\pi}{2}$

For $y = \tan(x)$ give the period and the asymptote nearest to the right of $x = 0$.

2. period $\frac{\pi}{2}$; $x = \frac{\pi}{4}$

For $y = \tan(2x)$ give the period and the asymptote nearest to the right of $x = 0$.

3. period $\frac{\pi}{3}$; $x = \frac{\pi}{6}$

For $y = \tan(3x)$ give the period and the asymptote nearest to the right of $x = 0$.

4. period 2π; $x = \pi$

1. Period $= \dfrac{\pi}{\frac{1}{2}} = 2\pi$
2. $\dfrac{1}{2}x = \dfrac{\pi}{2} \Rightarrow x = \pi$

For $y = \tan\left(\frac{1}{2}x\right)$ give the period and the asymptote nearest to the right of $x = 0$.

5. period 3π; $x = \frac{3\pi}{2}$

1. Period $= \dfrac{\pi}{\frac{1}{3}} = 3\pi$
2. $\dfrac{1}{3}x = \dfrac{\pi}{2} \Rightarrow x = \dfrac{3\pi}{2}$

For $y = \tan\left(\frac{1}{3}x\right)$ give the period and the asymptote nearest to the right of $x = 0$.

6. period $\frac{2\pi}{3}$; $x = \frac{\pi}{3}$

1. Period $= \dfrac{\pi}{\frac{3}{2}} = \dfrac{2\pi}{3}$
2. $\dfrac{3}{2}x = \dfrac{\pi}{2} \Rightarrow x = \dfrac{\pi}{3}$

For $y = \tan\left(\frac{3}{2}x\right)$ give the period and the asymptote nearest to the right of $x = 0$.

7. period 4π; $x = 2\pi$

1. Period $= \dfrac{\pi}{\frac{1}{4}} = 4\pi$
2. $\dfrac{1}{4}x = \dfrac{\pi}{2} \Rightarrow x = 2\pi$

For $y = \tan\left(\frac{1}{4}x\right)$ give the period and the asymptote nearest to the right of $x = 0$.

8. period $\frac{\pi}{4}$; $x = \frac{\pi}{8}$

1. Period $= \dfrac{\pi}{4}$
2. $4x = \dfrac{\pi}{2} \Rightarrow x = \dfrac{\pi}{8}$

For $y = \tan(4x)$ give the period and the asymptote nearest to the right of $x = 0$.

9. period $\frac{3\pi}{2}$; $x = \frac{3\pi}{4}$

1. Period $= \dfrac{\pi}{\frac{2}{3}} = \dfrac{3\pi}{2}$
2. $\dfrac{2}{3}x = \dfrac{\pi}{2} \Rightarrow x = \dfrac{3\pi}{4}$

For $y = \tan\left(\frac{2}{3}x\right)$ give the period and the asymptote nearest to the right of $x = 0$.

10. period $\frac{\pi}{6}$; $x = \frac{\pi}{12}$

1. Period $= \dfrac{\pi}{6}$
2. $6x = \dfrac{\pi}{2} \Rightarrow x = \dfrac{\pi}{12}$

For $y = \tan(6x)$ give the period and the asymptote nearest to the right of $x = 0$.