Answer Key · Lesson 6.3: Compositions with Inverse Functions

School Launch · Trigonometry · Unit 6 · Worksheet A · for the parent

Key

1. $\frac{5}{13}$

Find the exact value: $\sin\left(\tan^{-1}\frac{5}{12}\right)$.

2. $\frac{40}{41}$

Find the exact value: $\cos\left(\sin^{-1}\frac{9}{41}\right)$.

3. $\frac{21}{29}$

Find the exact value: $\cos\left(\sin^{-1}\frac{20}{29}\right)$.

4. $\frac{24}{25}$

1. Let $\theta = \sin^{-1}\dfrac{7}{25}$: opposite 7, hypotenuse 25
2. Adjacent $= 24$ (Pythagoras)
3. $\cos\theta = \dfrac{24}{25}$

Find the exact value: $\cos\left(\sin^{-1}\frac{7}{25}\right)$.

5. $\frac{8}{17}$

1. Let $\theta = \tan^{-1}\dfrac{8}{15}$: opposite 8, adjacent 15
2. Hypotenuse $= 17$ (Pythagoras)
3. $\sin\theta = \dfrac{8}{17}$

Find the exact value: $\sin\left(\tan^{-1}\frac{8}{15}\right)$.

6. $\frac{4}{5}$

1. Let $\theta = \sin^{-1}\dfrac{3}{5}$: opposite 3, hypotenuse 5
2. Adjacent $= 4$ (Pythagoras)
3. $\cos\theta = \dfrac{4}{5}$

Find the exact value: $\cos\left(\sin^{-1}\frac{3}{5}\right)$.

7. $\frac{12}{13}$

1. Let $\theta = \sin^{-1}\dfrac{5}{13}$: opposite 5, hypotenuse 13
2. Adjacent $= 12$ (Pythagoras)
3. $\cos\theta = \dfrac{12}{13}$

Find the exact value: $\cos\left(\sin^{-1}\frac{5}{13}\right)$.

8. $\frac{7}{25}$

1. Let $\theta = \tan^{-1}\dfrac{7}{24}$: opposite 7, adjacent 24
2. Hypotenuse $= 25$ (Pythagoras)
3. $\sin\theta = \dfrac{7}{25}$

Find the exact value: $\sin\left(\tan^{-1}\frac{7}{24}\right)$.

9. $\frac{20}{21}$

1. Let $\theta = \cos^{-1}\dfrac{21}{29}$: adjacent 21, hypotenuse 29
2. Opposite $= 20$ (Pythagoras)
3. $\tan\theta = \dfrac{20}{21}$

Find the exact value: $\tan\left(\cos^{-1}\frac{21}{29}\right)$.

10. $\frac{9}{40}$

1. Let $\theta = \cos^{-1}\dfrac{40}{41}$: adjacent 40, hypotenuse 41
2. Opposite $= 9$ (Pythagoras)
3. $\tan\theta = \dfrac{9}{40}$

Find the exact value: $\tan\left(\cos^{-1}\frac{40}{41}\right)$.