

1 Problems

Exercise 1. Compute $\tan(\sin^{-1}(\frac{12}{13}))$.

Exercise 2. Compute $\sin(\cos^{-1}(\frac{3}{5}))$.

Exercise 3. Compute $\sin(\tan^{-1}(\frac{4}{3}))$.

Exercise 4. Compute $\sin(75^\circ)$.

Exercise 5. Compute $\cos(\frac{5\pi}{8})$.

2 Answer key

Exercise 1. $\frac{12}{5}$

Exercise 2. $\frac{4}{5}$

Exercise 3. $\frac{4}{5}$

Exercise 4. $\frac{\sqrt{6}+\sqrt{2}}{4}$

Exercise 5. $-\sqrt{\frac{1-\sqrt{2}}{2}}$

3 Solutions

Exercise 1. By Pythagoras the missing side is length 5. So the tangent of the angle is $\frac{12}{5}$.

Exercise 2. By Pythagoras the missing side is length 4. So the sine of the angle is $\frac{4}{5}$.

Exercise 3. By Pythagoras the missing side is length 5. So the sine of the angle is $\frac{4}{5}$.

Exercise 4. Use the double angle formula: $\sin(75^\circ) = \sin(45^\circ + 30^\circ) = \sin(45^\circ)\cos(30^\circ) + \cos(45^\circ)\sin(30^\circ) = \frac{\sqrt{2}}{2} * \frac{\sqrt{3}}{2} + \frac{\sqrt{2}}{2} * \frac{1}{2} = \frac{\sqrt{6}+\sqrt{2}}{4}$.

Exercise 5. Use that $\frac{5\pi}{8} = \frac{1}{2} * \frac{5\pi}{4}$ and use the half angle formula.