

Classwork: Trigonometry

[1 – 4] Determine the quadrant in which the terminal side of the angle lies. These angles involve 1 or more complete rotations.

[1] 700°

[2] -700°

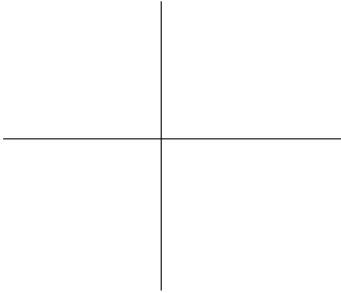
[3] $\frac{25\pi}{4}$

[4] $-\frac{25\pi}{4}$

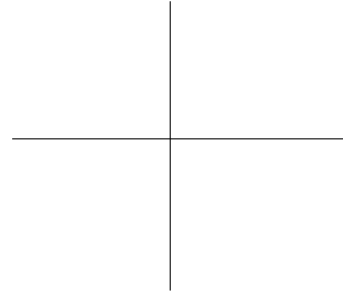
[5 – 6] Given the value of one trig ratio, draw a triangle in the correct quadrant and find the other value.

[5] $\sec \alpha = -\frac{25}{7}, 0 < \alpha < \pi$

[6] $\sin \beta = -\frac{15}{17}, \frac{\pi}{2} < \beta < \frac{3\pi}{2}$



Find $\sin \alpha$.



Find $\tan \beta$.

[7] Convert to degrees. Show your work.

[a] $\frac{\pi}{18}$

[b] $\frac{9\pi}{4}$

[8] Convert to radians. Show your work.

[a] 75°

[b] 240°

[9 – 12] Identify the quadrant (or quadrants) in which the terminal side of the angle lies.

[9] $\sin \alpha < 0, \tan \alpha < 0$

[10] $\cos \beta < 0, \csc \beta < 0$

[11] $\tan \gamma > 0, \sec \gamma > 0$

[12] $\sec \theta < 0, \cos \theta < 0$

[13– 16] Evaluate each expression, or write *dne*. Answers that are not *dne* or zero must include a sign (+ or -).

[13] $\sin 90^\circ$

[14] $\tan \pi$

[15] $\sec \frac{3\pi}{2}$

[16] $\csc 360^\circ$

[17– 20] Evaluate each expression, or write *dne*. Answers that are not *dne* or zero must include a sign (+ or -).

[17] $\sin 120^\circ$

[18] $\cos \frac{7\pi}{6}$

[19] $\tan\left(-\frac{\pi}{3}\right)$

[20] $\sec 150^\circ$

[21] Use the appropriate angle sum or difference identity to evaluate the following:

[a] Evaluate $\cos\left(\frac{2\pi}{3} + \frac{\pi}{4}\right)$

[b] Evaluate $\sin\left(\frac{7\pi}{6} - \frac{\pi}{4}\right)$

[22] Use the appropriate half angle formula to evaluate $\cos\frac{5\pi}{8}$

[23 -27] Choose all the equivalent expressions. You will need to know your identities!

[23] $\sec^2 10^\circ =$

[a] $1 + \tan^2 10^\circ$

[b] $1 - \tan^2 10^\circ$

[c] $\frac{1}{\cos^2 10^\circ}$

[d] $\frac{1}{\sin^2 10^\circ}$

[e] $\frac{1}{\sin^2 10^\circ \cot^2 10^\circ}$

[24] $\cos^2 50^\circ =$

[a] $1 - \sin^2 50^\circ$

[b] $1 + \sin^2 50^\circ$

[c] $\frac{1}{2} + \frac{1}{2} \cos 100^\circ$

[d] $\frac{1}{2} - \frac{1}{2} \cos 100^\circ$

[e] $\frac{1}{2} + \frac{1}{2} \cos 25^\circ$

[25] $\sqrt{\frac{1}{2} - \frac{1}{2} \cos 20^\circ} =$

[a] $\sin 10^\circ$

[b] $\sin 40^\circ$

[c] $\cos 10^\circ$

[d] $\cos 40^\circ$

[26] $2 \sin \frac{\pi}{10} \cos \frac{\pi}{10} =$

[a] $\sin \frac{\pi}{20}$

[b] $\sin \frac{\pi}{5}$

[c] $\cos \frac{\pi}{20}$

[d] $\cos \frac{\pi}{5}$

[27] $\cos^2 \frac{\pi}{15} - \sin^2 \frac{\pi}{15} =$

[a] $\sin \frac{\pi}{30}$

[b] $\sin \frac{2\pi}{15}$

[c] $\cos \frac{\pi}{30}$

[d] $\cos \frac{2\pi}{15}$

[28 -30] Evaluate each expression without a calculator.

[28] $\sin 12^\circ \cos 18^\circ + \sin 18^\circ \cos 12^\circ =$

[29] $\cos 50^\circ \cos 5^\circ + \sin 50^\circ \sin 5^\circ =$

[30] $\sin 70^\circ \cos 10^\circ - \sin 70^\circ \cos 10^\circ =$