Trigonometry Workbook

The six trig functions

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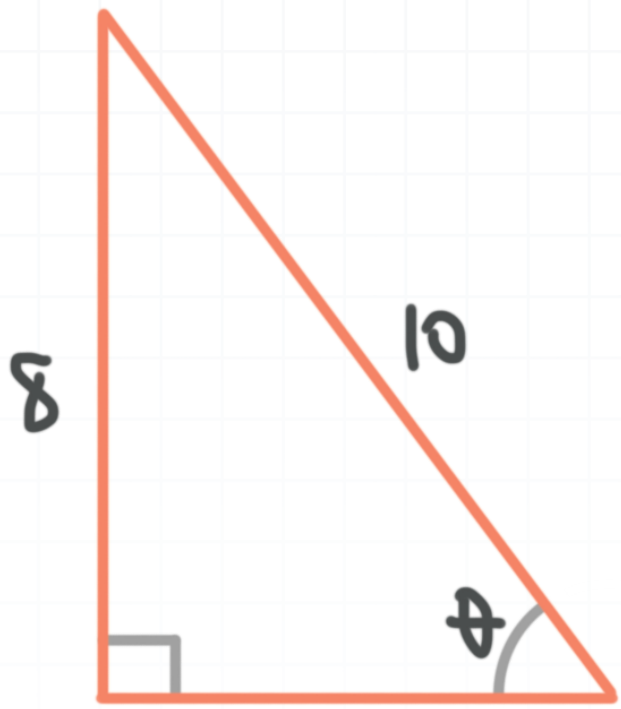
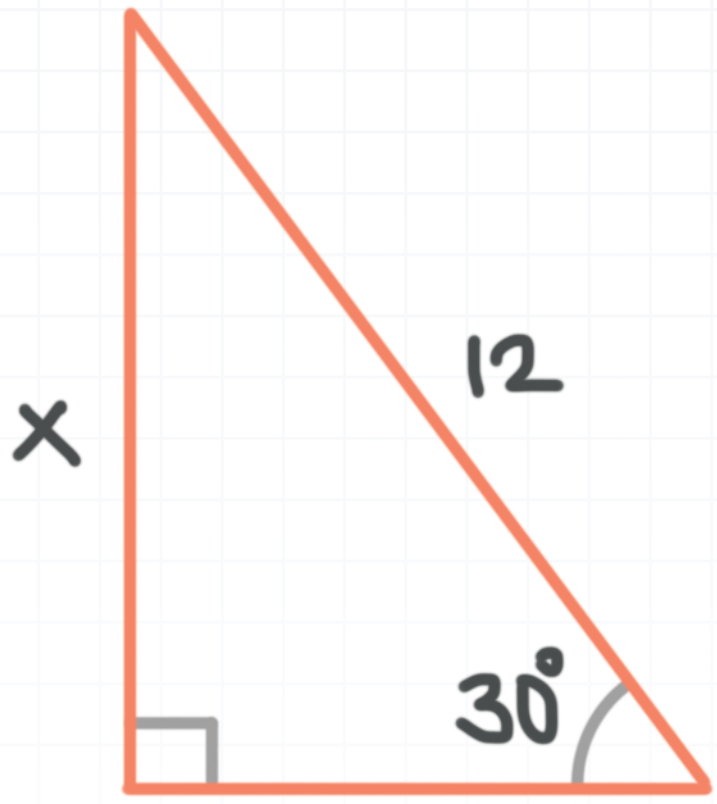
MATH

SINE, COSINE, AND TANGENT

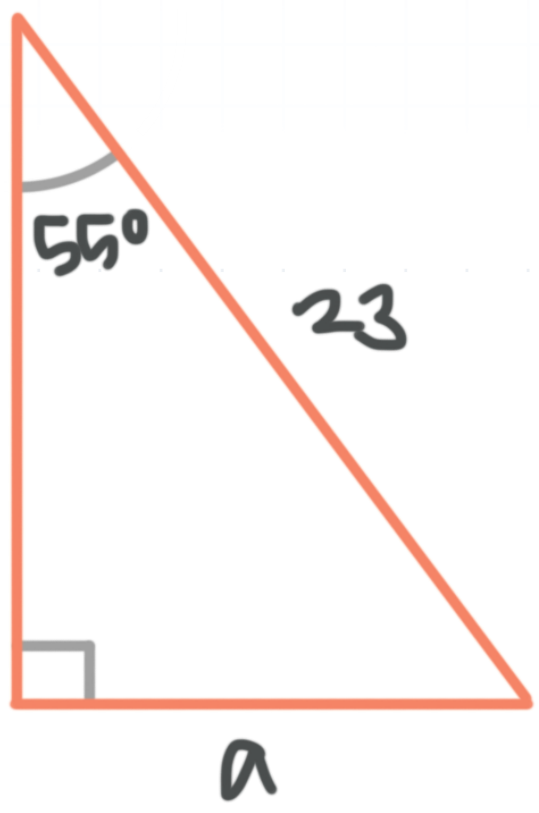
1. Find cosine of the angle θ.



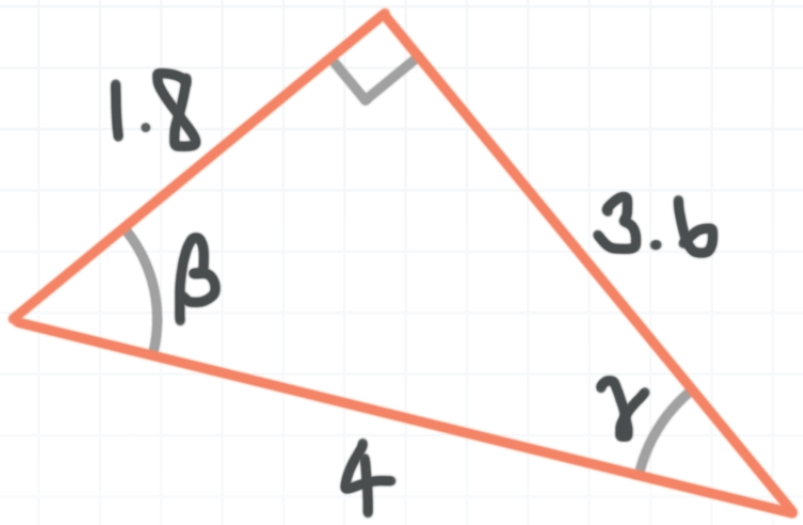
2. Find the measure of the unknown angle of the triangle.



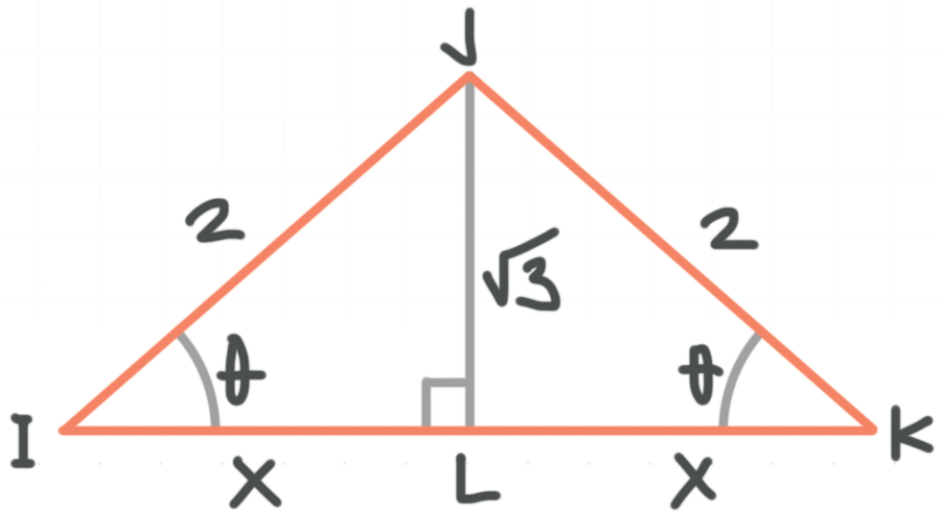
3. Find the equation that would be used to solve for a.



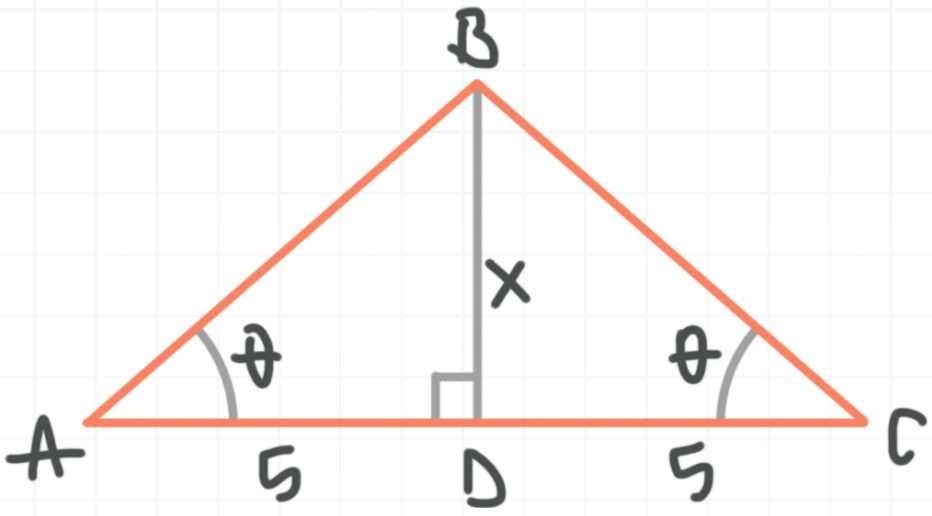
4. Find the sine, cosine, and tangent for β and γ.



■ 5. Find the value of sine of the angle θ, given that the triangle is isosceles (two of the sides have equal length, and the base angles are equal).

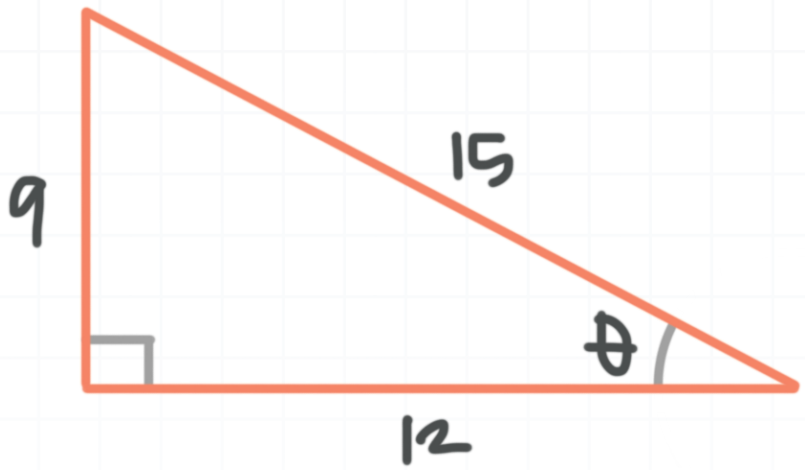


■ 6. Find the equation that would be used to solve for x, given $\overline{AB} = \overline{BC}$ and $\theta = 45°$.

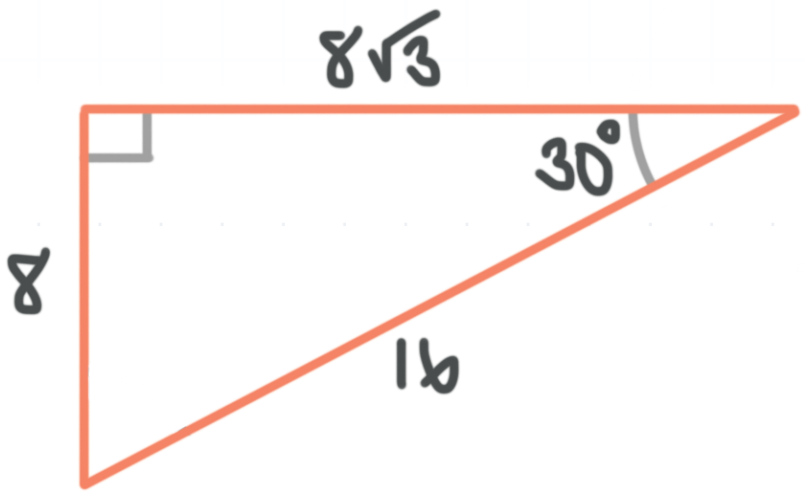


COSECANT, SECANT, COTANGENT, AND THE RECIPROCAL IDENTITIES

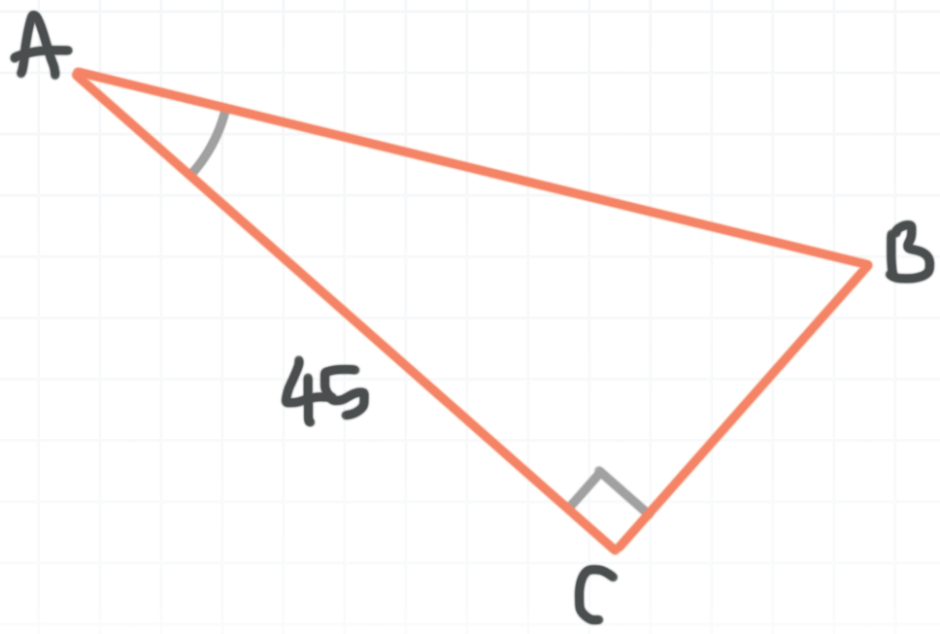
1. Find the value of secant of θ.



2. Find the exact value of the six trigonometric functions for $\theta = 30°$.



3. Given right triangle ABC, $\sin A = 28/53$. Find the exact value of secant, cosecant, and cotangent for the angle A.



4. Find $\csc\theta$, if $\sin\theta = 8/17$.

5. If $\sec\theta = 61/60$ and $\tan\theta = 11/60$, determine the values of the other four trigonometric functions.

6. Given the value of $\cot\theta$, find the value of $\tan\theta$.

$$\cot\theta = \frac{63}{16}$$

THE QUOTIENT IDENTITIES

1. If $\sin\theta = 16/65$ and $\cos\theta = 63/65$, find $\cot\theta$.

2. If $\tan\theta = 4/3$ and $\cos\theta = 3/5$, find $\sin\theta$.

3. If $\cot\theta = \sqrt{13}/6$ and $\csc\theta = -7/6$, find $\cos\theta$.

4. If $\cot\theta = -12/5$ and $\cos\theta = 12/13$, find $\sin\theta$.

5. If $\sin\theta = 39/89$ and $\tan\theta = -39/80$, find $\cos\theta$.

6. If $\tan\theta = 8/15$ and $\sec\theta = 17/15$, find $\sin\theta$.

THE PYTHAGOREAN IDENTITIES

■ 1. Find the positive value of $\cos(49.3°)$ if $\sin(49.3°) = 0.758$.

■ 2. In a right triangle, sine of the acute angle is $1/5$. What are the positive values of the cosine and cotangent of this angle?

■ 3. If $\sin\theta = 12/13$, what is the negative value of $\cot\theta$?

■ 4. If $\theta = 6\pi/5$ and $\sin\theta = -0.588$, what is the negative value of $\cos\theta$?

■ 5. If θ is an angle in the second quadrant such that $\cos\theta = -0.412$, what is the negative value of $\tan\theta$?

■ 6. Evaluate the expression if $\cos\theta = 1/\sqrt{3}$.

$$\tan^2\theta + \sin^2\theta + \sec^2\theta$$

SIGNS BY QUADRANT

- 1. Find $\sin\theta$ if the angle θ lies in the interval $[0°,180°)$ and $\cos^2\theta - 0.36 = 0$.

- 2. Find $\cot\theta$ if $\cos\theta = 0.6$ and the angle θ is in the interval $[5\pi,6\pi)$.

- 3. Find $\sin\theta$ if $\sec\theta = 3$ and $\cot\theta < 0$.

- 4. At the angle $-340°$, what are the signs of sine and cosine.

- 5. In which quadrant does the angle θ lie, if $\tan\theta$ is positive and $\sec\theta$ is negative?

- 6. Find the largest among the values of the six trig functions of θ if $\cos\theta = -0.1$ and θ lies in the third quadrant.

WHEN THE TRIG FUNCTIONS ARE UNDEFINED

- 1. For what angle is $\cot\theta$ undefined in the interval $(0,2\pi]$?

- 2. Determine whether or not $\cot(-43\pi/4)$ is defined.

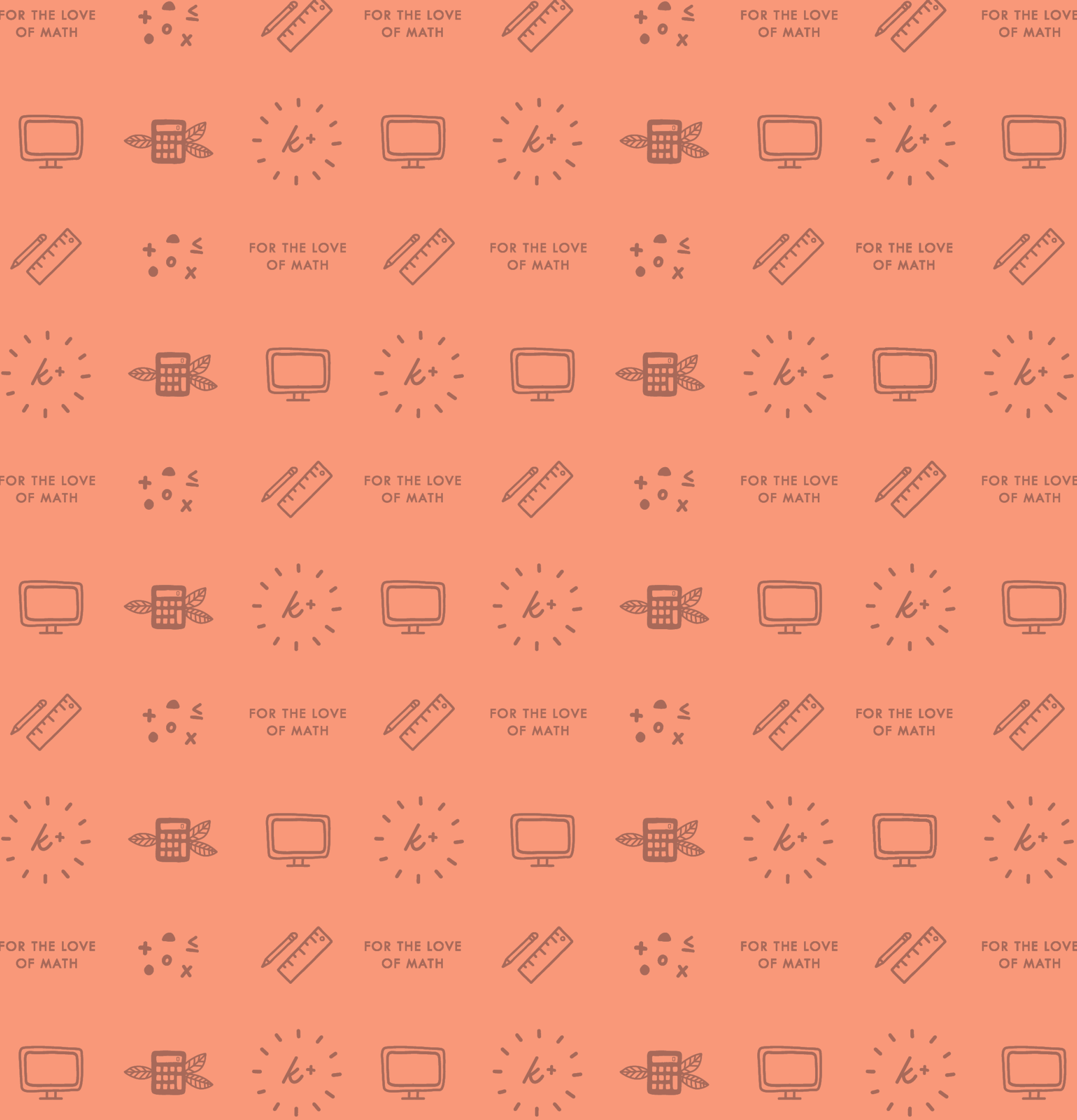
- 3. Which trigonometric functions are undefined for $\theta = \pi/2$?

- 4. Which of the six trigonometric functions are undefined along the y-axis (when $x = 0$)?

- 5. Find the angle where $\tan\theta$ is undefined in the given interval.

$$\left(\frac{7\pi}{3}, \frac{25\pi}{6}\right)$$

- 6. Find the values of all six trig functions at $\theta = \pi$, and say whether or not any of them are undefined at this angle.



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