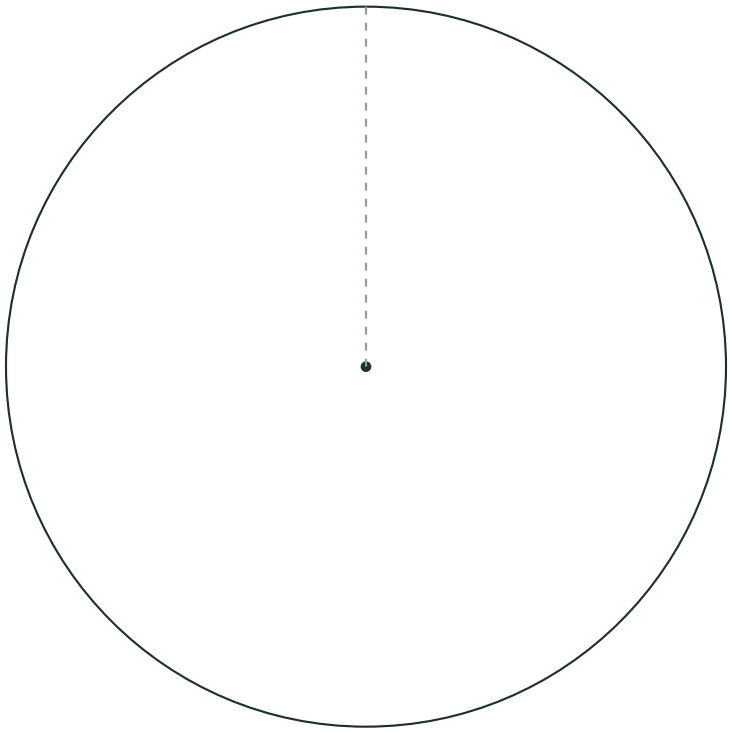
Draw a 24-Hour Clock Face: Numerals, Ticks, and Hands

EXERCISE 1 / PRACTICE

On a face with 0 at the top, at what angle clockwise is numeral 9? At what angle is numeral 21?

Place 0 to 23 clockwise in equal 15-degree steps; then locate 9 and 21.

0 / top reference



Write your calculations below the drawing.

Dashed line: zero-angle reference, not a clock hand.

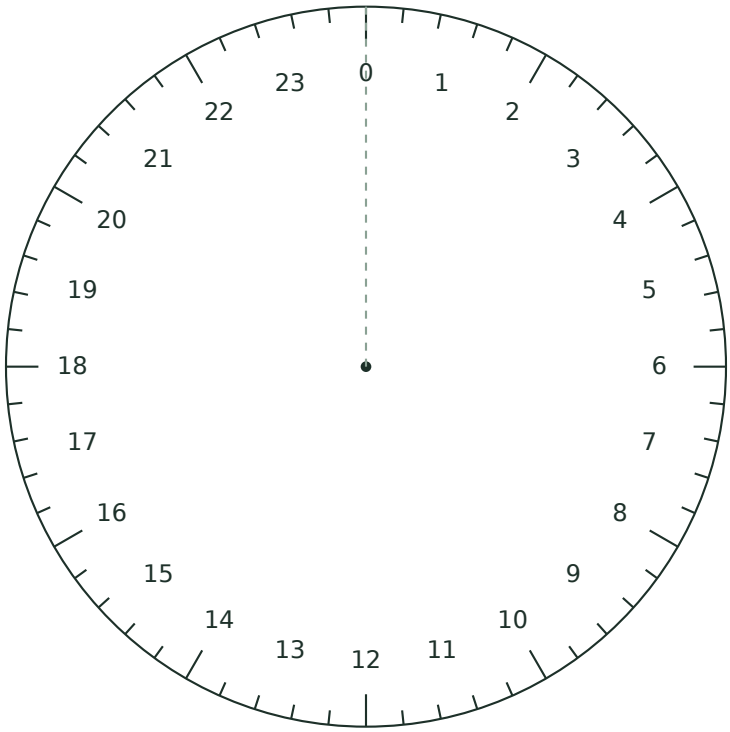
My calculation: _____

Draw a 24-Hour Clock Face: Numerals, Ticks, and Hands

EXERCISE 2 / PRACTICE

Compute the hour-hand and minute-hand angles for 14:45, measured clockwise from the top.

Add both hands and show your hour/minute calculations.



Write your calculations below the drawing.

Dashed line: zero-angle reference, not a clock hand.

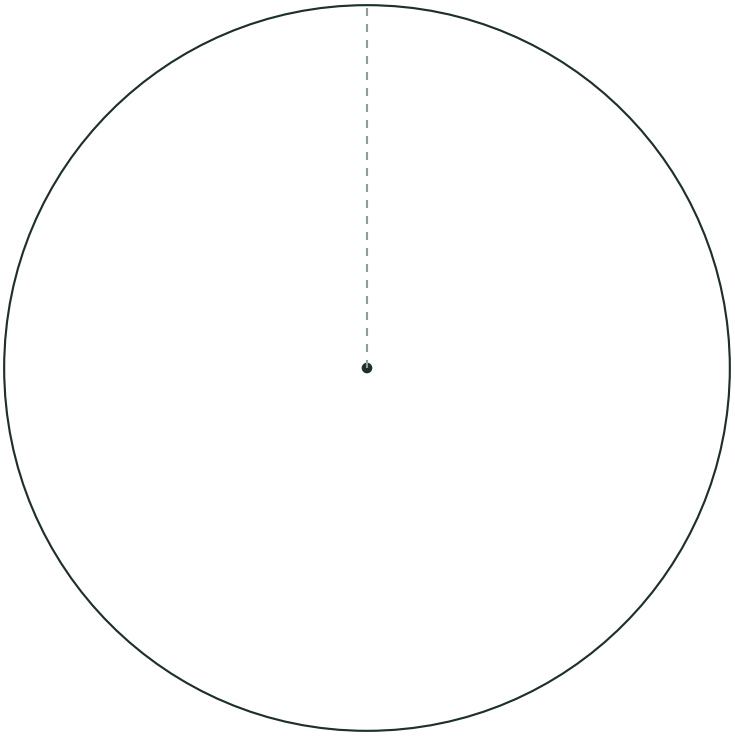
My calculation: _____

Draw a 24-Hour Clock Face: Numerals, Ticks, and Hands

EXERCISE 3 / PRACTICE

A circle has radius 48 mm. How many minute ticks are needed, and what is the angle between adjacent minute ticks?

Print at 100% Actual Size: this circle has 48 mm radius. Mark the minute divisions and record their count and angular spacing.



Write your calculations below the drawing.

Dashed line: zero-angle reference, not a clock hand.

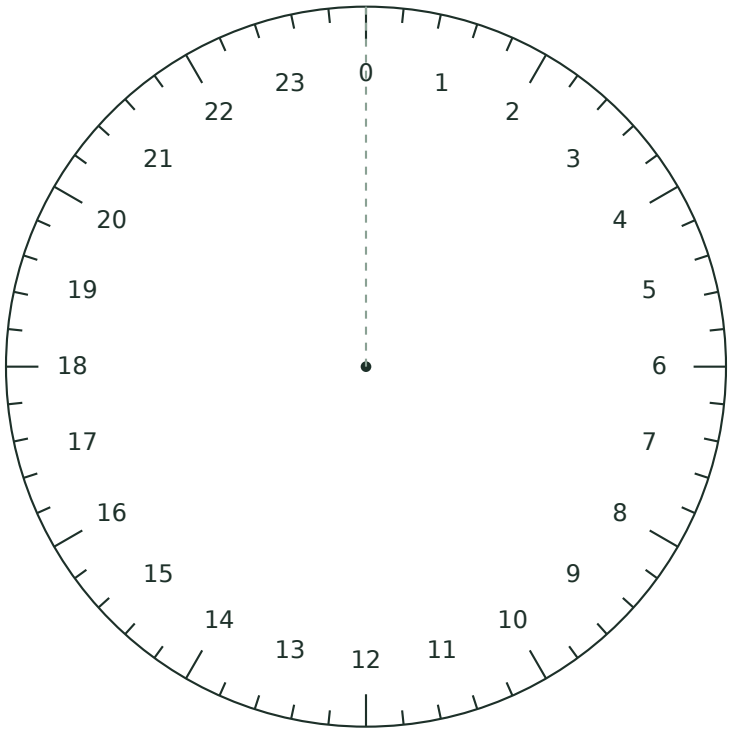
My calculation: _____

Draw a 24-Hour Clock Face: Numerals, Ticks, and Hands

EXERCISE 4 / PRACTICE

At 23:15, which numeral is the hour hand nearest, and what is its exact angle?

Add the hands, identify the nearest hour numeral and show the exact hour-hand angle.



Write your calculations below the drawing.

Dashed line: zero-angle reference, not a clock hand.

My calculation: _____