

Quiz 3

25 minutes

Timer begins after papers are ready

- 1 Write your name (last, first), date, and section.
- 2 Show all work inside each question box.
- 3 A correct answer without supporting work receives no credit.
- 4 Odd questions: left column. Even questions: right column.

Wait for the start signal. Turn in your paper when the timer ends.

After the quiz: Section 2.5

3:40–3:43

A focused start on parallel and perpendicular lines

TODAY

2.5

Slopes and equations of
parallel or perpendicular
lines

FRIDAY

3.1

Quadratic maxima and
minima

Why this focus?

Today's lesson connects slope rules to equations through a point and prepares for Friday's work with quadratic functions.

Current ALEKS module: Sections 2.5 and 3.1 · due Wed, Sep 23 at 2:10 PM

The two slope rules

3:43–3:48

Start by writing the given line in slope–intercept form

PARALLEL

$$m_2 = m_1$$

Same slope

PERPENDICULAR

$$m_1 \cdot m_2 = -1$$

Opposite reciprocal slopes

Exception to the slope formula: horizontal and vertical lines are perpendicular.

Airfield map: aligned paths

3:48–3:55

Schematic east–north grid (km) · runway: $2x + y = 5$ · junction $P = (4, 0)$

$$2x + y = 5 \rightarrow y = -2x + 5 \rightarrow m = -2$$

PARALLEL TAXIWAY THROUGH P

$$m = -2$$

$$y - 0 = -2(x - 4)$$

$$y = -2x + 8$$

PERPENDICULAR CONNECTOR THROUGH P

$$m = \frac{1}{2}$$

$$y - 0 = \frac{1}{2}(x - 4)$$

$$y = \frac{1}{2}x - 2$$

Both proposed paths pass through junction $P = (4, 0)$.

Aerial-survey flight paths

3:55–4:00

Training map: x east, y north (nautical miles)

Existing flight leg: $y = 2x + 3$

Through waypoint $P = (4, 1)$, write a survey leg that is...

- A. parallel to the existing leg
- B. perpendicular to the existing leg

Find each slope, use point–slope form, then check waypoint P.

Survey-path equations

4:00–4:03

Existing leg $y = 2x + 3$ · waypoint $P = (4, 1)$

PARALLEL SURVEY LEG

$$m = 2$$

$$y - 1 = 2(x - 4)$$

$$y = 2x - 7$$

PERPENDICULAR SURVEY LEG

$$m = -\frac{1}{2}$$

$$y - 1 = -\frac{1}{2}(x - 4)$$

$$y = -\frac{1}{2}x + 3$$

Waypoint check: $1 = 2(4) - 7$, and $1 = -\frac{1}{2}(4) + 3$.

Before Friday

4:03–4:05

Carry today's line work into ALEKS, then prepare for quadratics

TODAY

Begin Section 2.5 in ALEKS: parallel/perpendicular slopes and equations.

FRIDAY

Section 3.1: maximum and minimum of a quadratic.

WED 9/23

ALEKS Sections 2.5/3.1 due at 2:10 PM; Test 1 on paper.

Quiz 4 is planned for Monday, Sep 21; check Canvas for confirmed coverage.