

Quiz 3 readiness

Coordinate geometry and quadratic applications

2.1

2.2 2.4

CURRENT ALEKS MODULE

Monday, September 14, 2026
3:15–4:05 PM

Quiz 3 · Wednesday, Sep 16 at 2:10 PM

Monday's 50 minutes

PLAN

Quiz 3 coverage, focused review, and an ALEKS plan

7 min 3:15–3:22	7 min 3:22–3:29	20 min 3:29–3:49	10 min 3:49–3:59	6 min 3:59–4:05
Class picture	Retrieval	Coordinate review	Quadratic uses	Mixed check

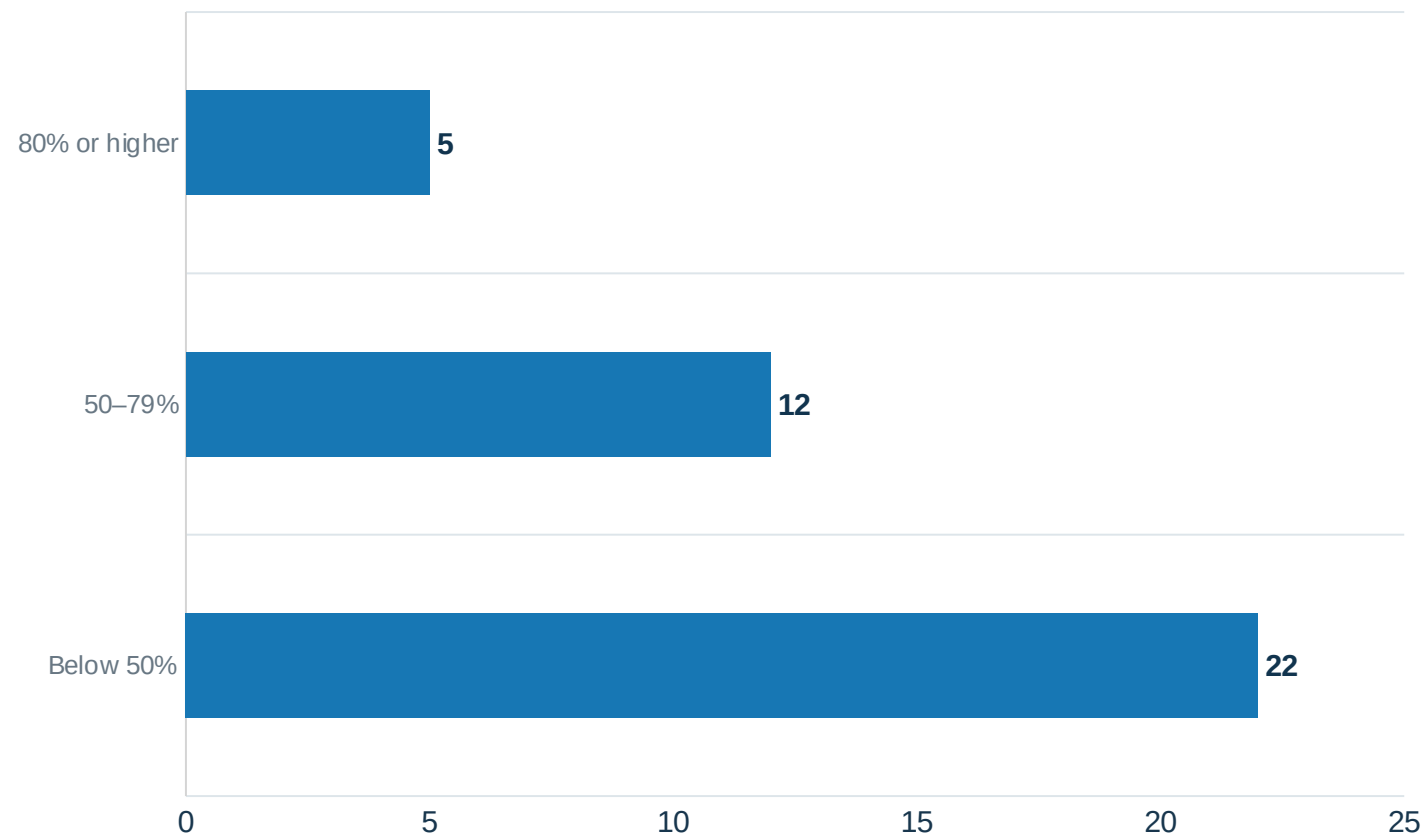
Every practice block includes a check

Exact form first. Decimal only when requested. Use the context to reject impossible answers.

Current-module progress

CLASS

Sections 2.1, 2.2, and 2.4 · 39 active students · September 14 snapshot



44.0%

class average

47.8%

median

3

complete

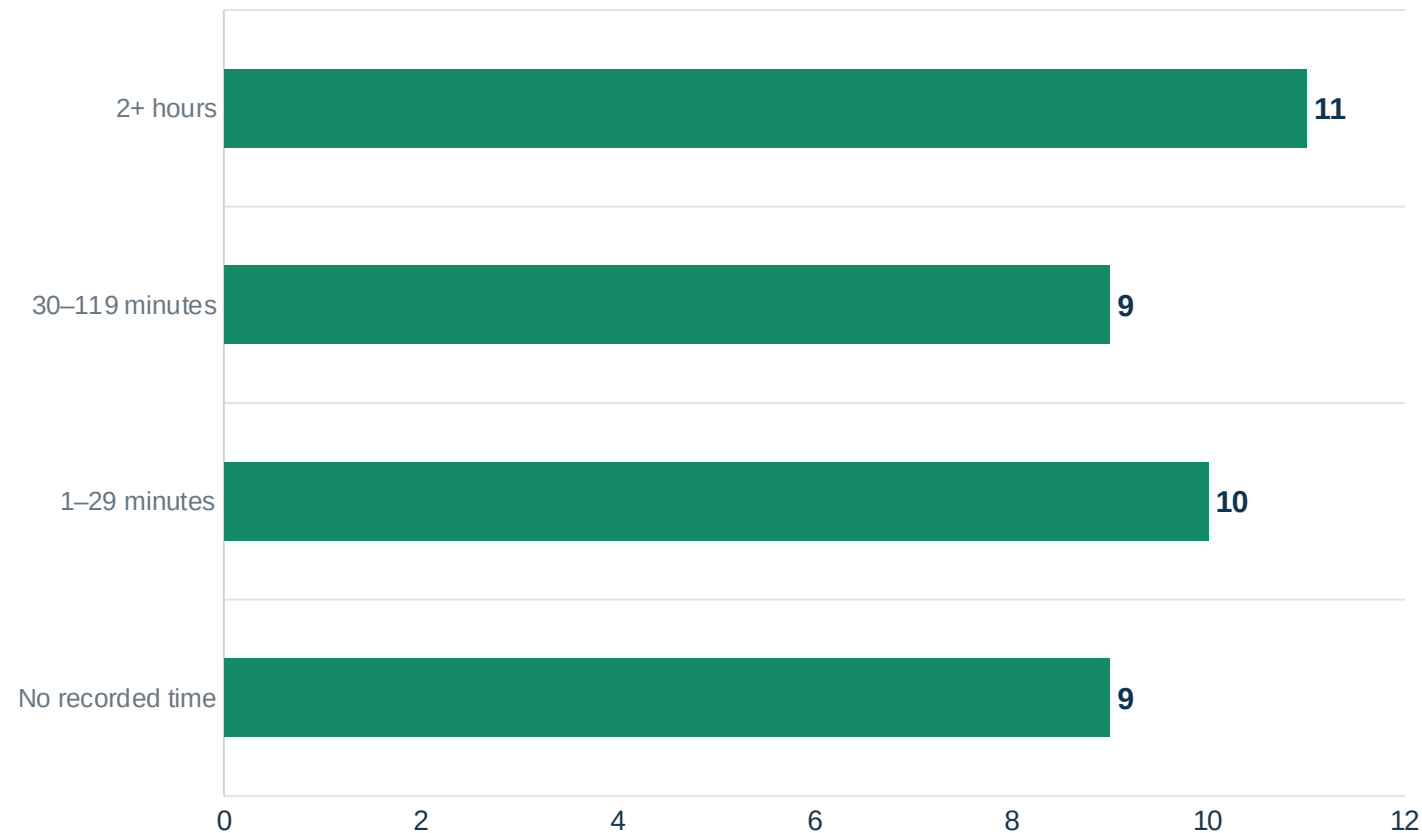
22 students are below halfway

That group includes students with little recent activity and students who have worked but still need help.

Recent ALEKS activity

CLASS

September 8–14 · activity describes participation, not mastery



59.9 hours

class total in the last 7 days

30 active · 9 with no time

19 students recorded under 30 minutes

59.5%

of Sep 5–11 activity occurred on Sep 8–9

Quiz 3 coverage

COVERAGE

The quiz uses current coordinate skills plus retained quadratic applications

ON QUIZ 3

Distance and midpoint

All intercepts, including factored polynomials

Slope and a line equation

Coordinate tables and solution checks

Circle form, center, radius, and diameter

A quadratic rectangle application

AFTER QUIZ 3

Function notation and evaluation

Domain

Parallel and perpendicular lines

These topics remain in the course. They are not part of this Quiz 3 review.

ALEKS Sections 2.1, 2.2, and 2.4 remain due Sep 16 at 2:10 PM. Canvas is the source of truth.

Quiz 3 retrieval

RETRIEVAL

Work independently for five minutes · show enough work to diagnose an error

1 For $A(-2, 5)$ and $B(4, -7)$, find the midpoint and exact distance.

2 Find all intercepts of $y = x^3 - 16x$. Factor completely.

3 For $3x - 2y = 12$, find y when $x = 0$ and test whether $(-2, -9)$ is a solution.

4 A rectangle has area 54 ft^2 . Its length is 3 ft more than its width. Find both dimensions.

Show the setup. Quiz 3 awards credit for the method, not a bare answer.

Retrieval check

CHECK

Compare methods, then mark the first step where your work changed

1 Midpoint $(1, -1)$. Distance $\sqrt{180} = 6\sqrt{5}$.

2 $x(x^2 - 16) = x(x - 4)(x + 4)$. Intercepts $(-4, 0)$, $(0, 0)$, and $(4, 0)$.

3 $x = 0$ gives $y = -6$. The point $(-2, -9)$ works because $-6 + 18 = 12$.

4 $x(x + 3) = 54$. The positive solution gives 6 ft by 9 ft.

A wrong final answer often begins with one sign or substitution error.

Coordinate formula map

REFERENCE

Name the quantity before choosing the formula

MIDPOINT

$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

Average x-values and y-values separately.

DISTANCE

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Subtract, square, add, then take the square root.

SLOPE AND LINE

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Then use $y - y_1 = m(x - x_1)$.

CIRCLE

$$(x - h)^2 + (y - k)^2 = r^2$$

Center (h, k) . Radius r .

For intercepts: set $y = 0$ for the x-intercept and set $x = 0$ for the y-intercept.

Midpoint and distance

MODEL

Find the midpoint and exact distance

$$C(-3, -2) \text{ and } D(5, 4)$$

$$\Delta x = 5 - (-3) = 8 \quad \Delta y = 4 - (-2) = 6$$

DISTANCE

$$\begin{aligned} d &= \sqrt{8^2 + 6^2} \\ &= \sqrt{100} = 10 \end{aligned}$$

Distance must be positive.

MIDPOINT

$$\begin{aligned} M &= \left(\frac{-3 + 5}{2}, \frac{-2 + 4}{2} \right) \\ &= (1, 1) \end{aligned}$$

The midpoint lies between the endpoints.

Reasonableness: 6–8–10 confirms the distance without a calculator.

Distance and midpoint practice

PRACTICE

$A(-4, 7)$ and $B(2, -1)$ · work for three minutes

$$A(-4, 7) \text{ and } B(2, -1)$$

- 1 Find Δx and Δy using one consistent endpoint order.
- 2 Find the midpoint.
- 3 Find the exact distance. Give a decimal only if needed.

Check that the midpoint lies between the endpoints and the distance is positive.

A line through two points

MODEL

Find the slope and line equation, then both intercepts

Through $(-2, 5)$ and $(4, -1)$

1 Slope: $m = \frac{-1 - 5}{4 - (-2)} = \frac{-6}{6} = -1$

2 Point-slope form: $y - 5 = -1(x + 2)$

3 Slope-intercept form: $y = -x + 3$

4 Intercepts: $(3, 0)$ and $(0, 3)$

Check both original points in $y = -x + 3$.

Line practice

PRACTICE

Through $(1, -2)$ and $(5, 6)$ · work for three minutes

Through $(1, -2)$ and $(5, 6)$

- 1 Find the slope.
- 2 Write the equation in slope-intercept form.
- 3 Find the x-intercept and y-intercept.

Self-check: both given points must satisfy the final equation.

All intercepts of a polynomial graph

MODEL

Factor completely before listing ordered pairs

Find all intercepts of $y = x^3 - 16x$

X-INTERCEPTS

Set $y = 0$

$$\begin{aligned}0 &= x^3 - 16x \\0 &= x(x^2 - 16) \\0 &= x(x - 4)(x + 4)\end{aligned}$$

$$x = -4, 0, 4$$

Y-INTERCEPT

Set $x = 0$

$$y = 0^3 - 16(0) = 0$$

The y-intercept (0, 0) is already in the x-intercept list.

All distinct intercepts
 $(-4, 0), (0, 0), (4, 0)$

Set the appropriate variable to zero, factor completely, and write ordered pairs.

Coordinate tables and solution checks

MODEL

Complete the table, then test both ordered pairs

$$3x - 2y = 12$$

COMPLETE THE TABLE

x	0	4	—
y	—	—	3

$x = 0$ gives $y = -6$
 $x = 4$ gives $y = 0$
 $y = 3$ gives $x = 6$

TEST ORDERED PAIRS

Substitute both coordinates

$$\begin{array}{l} 3(-2) - 2(-9) = 12 \\ -6 + 18 = 12 \quad \checkmark \end{array}$$

$$\begin{array}{l} 3(1) - 2(-4) = 11 \\ 11 \neq 12 \quad \times \end{array}$$

A table entry solves for one missing coordinate. A solution check substitutes a complete ordered pair.

Circle form

MODEL

The signs inside the parentheses reverse the center coordinates

$$(x - h)^2 + (y - k)^2 = r^2$$

READ AN EQUATION

$$(x + 4)^2 + (y - 1)^2 = 9$$

Center $(-4, 1)$, $r = 3$

The radius is the positive square root of 9.

WRITE FROM A DIAMETER

Center $(3, -2)$, diameter = 10

$$r = \frac{10}{2} = 5$$

$$(x - 3)^2 + (y + 2)^2 = 25$$

Divide the diameter by 2 before squaring.

Center signs reverse inside the factors. Diameter $\div 2$ = radius.

Quadratic application: rectangle

MODEL

Define the width, write the area equation, and interpret the solutions

A rectangle has area 54 ft². Its length is 3 ft more than its width.

$$\text{width} = x \quad \text{length} = x + 3$$

- 1 Area equation: $x(x + 3) = 54$
- 2 Standard form: $x^2 + 3x - 54 = 0$
- 3 Factor: $(x + 9)(x - 6) = 0$
- 4 Solutions: $x = -9$ or $x = 6$. Reject -9 as a length.

The rectangle is 6 ft by 9 ft. The context decides which algebraic solution is valid.

Quiz 3 mixed practice A

PRACTICE

Set up all three problems before choosing one to finish

1 For $(-1, 4)$ and $(5, -4)$, find midpoint and exact distance.

2 Find the slope and equation of the line through $(-3, 2)$ and $(1, 10)$.

3 Find all intercepts of $y = x^3 - 25x$. Factor completely.

If you are stuck, write the relevant formula or define the unknown first.

Quiz 3 mixed practice B

PRACTICE

Set up all three problems before choosing one to finish

- 1 For $2x - y = 4$, find y when $x = 0$. Test whether $(3, 2)$ is a solution.
- 2 For $(x - 2)^2 + (y + 3)^2 = 49$, state center and radius. Then use center $(-4, 1)$ and diameter 12 to write another circle.
- 3 A rectangle has area 88 ft^2 . Its length is 3 ft more than its width. Find both dimensions.

Write units on the rectangle variable and final dimensions.

Mixed-practice check A

CHECK

Mark one item for another attempt before Wednesday

1 Midpoint (2, 0). Distance 10.

2 $m = 2$ and $y = 2x + 8$.

3 $x(x - 5)(x + 5) = 0$. Intercepts $(-5, 0)$, $(0, 0)$, and $(5, 0)$.

A complete check uses the original points, equation, or physical context.

Mixed-practice check B

CHECK

Mark one item for another attempt before Wednesday

1 $x = 0$ gives $y = -4$. The point $(3, 2)$ works because $6 - 2 = 4$.

2 Center $(2, -3)$, radius 7. The second circle is $(x + 4)^2 + (y - 1)^2 = 36$.

3 $x(x + 3) = 88$ gives $x = 8$. Dimensions 8 ft by 11 ft.

A complete check uses the original points, equation, or physical context.

Quiz 3 error checklist

CHECK

Most lost points come from setup and interpretation

COORDINATE GEOMETRY

Use the same endpoint order in Δx and Δy
Keep an exact radical unless a decimal is requested
Factor completely before listing polynomial intercepts
Solve one missing coordinate at a time in a table
Substitute both coordinates when testing a point

QUADRATIC APPLICATIONS

Reverse the signs when reading a circle center
Divide a diameter by 2 before squaring the radius
Define the rectangle width with units
Write the quadratic in standard form
Reject a negative length

Write enough work to earn method credit and to find your own error.

Exit ticket and ALEKS

CLOSE

Complete the response, then schedule the next short practice session

EXIT TICKET

For $T(-4, 6)$ and $U(2, -2)$, find the midpoint and slope.

- 1 Finish ALEKS Sections 2.1, 2.2, and 2.4 by Sep 16 at 2:10 PM.
- 2 Use the course site's Quiz 3 practice for another mixed attempt.
- 3 Check Canvas for the official deadline and any final announcement.

Exit key: midpoint $(-1, 2)$, slope = $-\frac{4}{3}$