Watch. Practice. Understand. | Lesson 043

Geometry 3 5 Equations of Parallel and Perpendicular Lines + Finding a Missing point on ...

Watch the matching video: https://www.youtube.com/watch?v=MDWUHODQzhE

Practice focus: Lines and slopes

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 Find the slope through (2, 5) and (6, 13).

02 Write the line with slope -3 through (2, 7).

03 Find the line perpendicular to y = 2x + 1 through (4, 3).

04 Find both intercepts of 3x + 2y = 12.

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Practice focus: Parallel lines and angle relationships

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Name: _____ Date: _____ Show your reasoning and check units.

05 Two parallel lines are cut by a transversal. One acute angle is 65°. Find every possible angle measure at the intersections.

06 Alternate interior angles measure 3x + 5 and 5x - 25 degrees on parallel lines. Find x.

07 Same-side interior angles on parallel lines are 4x and 2x + 30 degrees. Find them.

08 A transversal creates equal corresponding angles. What can be concluded, and why?

Worked answers | Lesson 043

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01 Find the slope through (2, 5) and (6, 13).

m = (13 - 5)/(6 - 2) = 8/4 = 2.

02 Write the line with slope -3 through (2, 7).

y - 7 = -3(x - 2), or y = -3x + 13.

03 Find the line perpendicular to y = 2x + 1 through (4, 3).

Perpendicular slope is -1/2. y - 3 = -(x - 4)/2, so y = -x/2 + 5.

04 Find both intercepts of 3x + 2y = 12.

Set y = 0: x = 4. Set x = 0: y = 6. Intercepts: (4, 0) and (0, 6).

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05 Two parallel lines are cut by a transversal. One acute angle is 65°. Find every possible angle measure at the intersections.

Corresponding/vertical angles preserve 65°; adjacent supplementary angles are 180° - 65° = 115°.

06 Alternate interior angles measure 3x + 5 and 5x - 25 degrees on parallel lines. Find x.

Set them equal: 3x + 5 = 5x - 25, so x = 15.

07 Same-side interior angles on parallel lines are 4x and 2x + 30 degrees. Find them.

4x + 2x + 30 = 180 gives x = 25. Angles: 100° and 80°.

08 A transversal creates equal corresponding angles. What can be concluded, and why?

The lines are parallel by the converse of the corresponding angles theorem.