Grade 4 · Unit 7 · Assessment Guide

Angles and Angle Measurement

For the Parent or Teacher — What to look for

Unit 7 builds the formal vocabulary and measurement of angles. The deepest diagnostic is whether students understand that angle measure is about the AMOUNT OF TURN between two rays — not the length of the rays. Watch the clock work and the additive reasoning (a straight angle = 180°, a right angle = 90°).

Problem 1 — Draw point/line/ray/segment

- POINT: dot, label A. LINE: through B and C with arrows on both ends. RAY: starts at D (no arrow at D), arrow at E. SEGMENT: between F and G, no arrows.
- ★ Strong: distinguishes arrows correctly.
- Weak: same drawing for all four; or arrows wrong.

Problem 2 — Parallel vs. perpendicular

- Parallel: never meet, same direction. Perpendicular: meet at 90°.
- ★ Strong: clear distinction.
- Weak: confuses them; or thinks perpendicular means 'opposite directions.'

Problem 3 — Which figure is an angle?

- Figure A is an angle (two rays sharing a vertex). Figure B is a curve, NOT an angle.
- ★ Strong: identifies that an angle requires TWO STRAIGHT RAYS sharing a starting point.
- Weak: picks B because it 'has a corner.'

Problem 4 — Letter angles (L, X, T)

- L: one right angle. T: right angles where the vertical meets the crossbar. X: angles formed by crossing; in many fonts NOT right angles (acute/obtuse).
- ★ Strong: recognizes right angles where lines meet at exactly 90°.
- Weak: 'all letters have angles' without analyzing the type.

Problem 5 — Fill in angle vocabulary

- Half = 180°, STRAIGHT. Quarter = 90°, RIGHT. Smaller than right = ACUTE. Bigger than right but smaller than straight = OBTUSE.
- ★ Strong: all four correct.
- Weak: confuses acute and obtuse.

Problem 6 — Estimate angle types

- Square corner = 90° (right). Slightly less = e.g., 75°, acute. Almost straight = e.g., 170°, obtuse. Just past square = e.g., 100°, obtuse.
- Strong: reasonable estimates (within ~15°) and correct types.
- Weak: wildly-off estimates.

Problem 7 — Minute hand angles

- 30 min = 180°. 15 min = 90°. 5 min = 30°. 1 min = 6°.
- ★ Strong: reasons proportionally — 60 min = 360°, so per min = 6°.
- Weak: gets 30 and 15 (obvious) but misses per-minute scaling.

Problem 8 — 3:00 clock angle

- 90° (a right angle).
- Strong: reasons via clock face — 3/12 of 360° = 90°.
- Weak: estimates wildly.

Problem 9 — Straight angle = 180°, find missing

- 180 − 67 = 113°.
- Strong: writes 67 + ? = 180.
- Weak: 90 − 67 = 23 (treats as right angle).

Problem 10 — Right angle = 90°, find missing

- 90 − 35 = 55°.
- Strong: recognizes right = 90.
- Weak: 180 − 35 = 145 (treats as straight).

Problem 11 — Three angles on a straight line

- 180 − 41 − 65 = 74°.
- ★ Strong: identifies total = 180°.
- Weak: subtracts in wrong direction or uses 360.

Problem 12 — Diego's 'longer ray = bigger angle'

- Diego is WRONG. Angle measure is the SPREAD between rays — extending the rays doesn't change the angle.
- ★ Strong: draws an example — same angle, two ray lengths.
- Weak: agrees with Diego (very common misconception).

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