Angles, Parallel Lines and Polygons

Geometry and measures · 6 questions · step-by-step answers at the end

Name: Date: Score: / 6

USEFUL EQUATIONS

sum of interior angles = (n − 2) × 180° exterior angle = 360°/n

interior + exterior = 180° co-interior angles add to 180°

Questions

Show your working in the space under each question.

1. EASY Two angles on a straight line are x and 115°. Find x.

2. EASY An isosceles triangle has an angle of 40° between its equal sides. Find the other angles.

3. MEDIUM Find the sum of the interior angles of a hexagon.

4. MEDIUM Co-interior angles between parallel lines are (3x + 10)° and (2x + 20)°. Find x and both angles.

5. HARD The exterior angle of a regular polygon is 20°. How many sides?

6. HARD The angles of a pentagon are x, x + 20, 2x, 2x − 10 and 110 (in degrees). Find the largest angle.

Step-by-step answers

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1. $180 - 115 = \mathbf{65°}$.
2. $(180 - 40) \div 2 = \mathbf{70° \text{ each}}$.
3. $(6 - 2) \times 180 = \mathbf{720°}$.
4. $3x + 10 + 2x + 20 = 180$, so $5x = 150$ and $x = 30$. Angles $\mathbf{100° \text{ and } 80°}$.
5. $360 \div 20 = \mathbf{18 \text{ sides}}$.
6. Sum = 540: $6x + 120 = 540$, so $x = 70$. Angles 70, 90, 140, 130, 110. Largest: $\mathbf{140°}$.