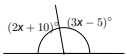
Build Tasks — Answers

1. Two angles on a straight line are $(2x + 10)^\circ$ and $(3x - 5)^\circ$. Find x.



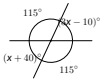
Solution

$(2x + 10) + (3x - 5) = 180$

$5x + 5 = 180$

$x = 35$

2. Vertically opposite angles are $(3x - 10)^\circ$ and $(x + 40)^\circ$. Find x.



Solution

Vertically opposite:

$3x - 10 = x + 40$

$2x = 50$

$x = 25$

3. A triangle has angles x°, $(x + 10)^\circ$, and $(2x - 10)^\circ$. Find x.

Solution

$x + (x + 10) + (2x - 10) = 180$

$4x = 180$

$x = 45$

4. An isosceles triangle has base angles $(2x)^\circ$ and apex $(x + 50)^\circ$. Find x.

Solution

$2(2x) + (x + 50) = 180$

$5x + 50 = 180$

$x = 26$

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5. Co-interior angles are $(2x + 20)^\circ$ and $(x + 40)^\circ$. Find x.

Solution

Co-interior sum to 180:

$(2x + 20) + (x + 40) = 180$

$3x + 60 = 180,\ x = 40$

6. Corresponding angles are $(4x - 8)^\circ$ and $(2x + 30)^\circ$. Find x.

Solution

Corresponding equal:

$4x - 8 = 2x + 30$

$2x = 38,\ x = 19$

7. A regular hexagon has interior angle $(3x + 30)^\circ$. Find x.

Solution

Hexagon interior $= 120$:

$3x + 30 = 120$

$x = 30$

8. A rectangle has width x cm and length $(x + 4)$ cm. Its perimeter is 40 cm. Find x.

Solution

$2[(x + 4) + x] = 40$

$4x + 8 = 40$

$x = 8$

Build Tasks — Answers

9. A square has side $(x + 3)$ cm and perimeter 72 cm. Find x.

Solution

$4(x + 3) = 72$

$x + 3 = 18$

$x = 15$

10. A triangle has base $(x + 2)$ cm and height 10 cm. Its area is 60 cm^2. Find x.

Solution

$\frac{1}{2}(x + 2)(10) = 60$

$x + 2 = 12$

$x = 10$

11. A rectangle has width 5 cm and length $(2x - 1)$ cm. Its area is 45 cm^2. Find x.

Solution

$5(2x - 1) = 45$

$2x - 1 = 9$

$x = 5$

12. Similar rectangles have corresponding sides $6, 9$ and $x, 12$. Find x.

Solution

$\frac{6}{9} = \frac{x}{12}$

$9x = 72$

$x = 8$

Build Tasks — Answers

13. Angles around a point are $(x+30)^\circ$, $(2x-20)^\circ$, and 140°. Find x.

Solution

$(x+30)+(2x-20)+140=360$

$3x+150=360$

$x=70$

14. Alternate angles are $(3x-15)^\circ$ and $(x+45)^\circ$. Find x.

Solution

Alternate equal:

$3x-15=x+45$

$2x=60,\ x=30$

15. The trapezium has area 48 cm^2. Find x.

Solution

$\dfrac{(x+4)+10}{2}\times 6=48$

$3(x+14)=48$

$x=2$

16. A regular nonagon (9 sides) has interior angle $(2x+20)^\circ$. Find x.

Solution

Nonagon interior $=140$:

$2x+20=140$

$x=60$