Topic: Complementary and supplementary angles

Question: Find the angle θ that's supplementary to 126°.

Answer choices:

A $\theta = 154^\circ$

B $\theta = 36^\circ$

C $\theta = 54^\circ$

D $\theta = 180^\circ$

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Solution: C

Since θ is supplementary to an angle of 126° we have

$$\theta + 126^\circ = 180^\circ$$

$$\theta = 180^\circ - 126^\circ$$

$$\theta = 54^\circ$$

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Topic: Complementary and supplementary angles

Question: Find the complement θ of $\pi/12$.

Answer choices:

A $\theta = \frac{5\pi}{12}$

B $\theta = \frac{\pi}{2}$

C $\theta = \frac{5\pi}{6}$

D $\theta = \frac{\pi}{3}$

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Solution: A

The angle θ and an angle of $\pi/12$ are complementary, so

$$\theta + \frac{\pi}{12} = \frac{\pi}{2}$$

$$\theta = \frac{\pi}{2} - \frac{\pi}{12}$$

Find a common denominator.

$$\theta = \frac{\pi}{2}\left(\frac{6}{6}\right) - \frac{\pi}{12}$$

$$\theta = \frac{6\pi}{12} - \frac{\pi}{12}$$

$$\theta = \frac{5\pi}{12}$$

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Topic: Complementary and supplementary angles

Question: Find the angle θ that's $1/3$ as large as the supplement of 87°.

Answer choices:

A $\theta = 1^\circ$

B $\theta = 31^\circ$

C $\theta = 37^\circ$

D $\theta = 13^\circ$

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Solution: B

Let α be the angle that's supplementary to $87°$.

$$\alpha + 87° = 180°$$

$$\alpha = 180° - 87°$$

$$\alpha = 93°$$

To find the angle θ that's $1/3$ as large, we'll divide α by 3.

$$\theta = \frac{\alpha}{3}$$

$$\theta = \frac{93°}{3}$$

$$\theta = 31°$$

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