Trigonometry Worksheets

Sine and Cosine of Complementary Angles

Find the value of θ that makes each statement true.

a. $\sin \theta = \cos(\theta + 38)$

b. $\cos \theta = \sin(\theta - 30)$

c. $\sin \theta = \cos(3\theta + 20)$

d. $\sin\left(\frac{\theta}{3} + 10\right) = \cos\theta$

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Sine and Cosine of Complementary Angles

Find the value of θ that makes each statement true.

a. $\sin\theta = \cos(\theta + 38)$

$$\cos(90 - \theta) = \cos(\theta + 38)$$
$$90 - \theta = \theta + 38$$
$$52 = 2\theta$$
$$26 = \theta$$

b. $\cos\theta = \sin(\theta - 30)$

$$\sin(90 - \theta) = \sin(\theta - 30)$$
$$90 - \theta = \theta - 30$$
$$120 = 2\theta$$
$$60 = \theta$$

c. $\sin\theta = \cos(3\theta + 20)$

$$\cos(90 - \theta) = \cos(3\theta + 20)$$
$$90 - \theta = 3\theta + 20$$
$$70 = 4\theta$$
$$17.5 = \theta$$

d. $\sin\left(\frac{\theta}{2} + 10\right) = \cos\theta$

$$\sin\left(\frac{\theta}{3} + 10\right) = \sin(90 - \theta)$$
$$\frac{\theta}{3} + 10 = 90 - \theta$$
$$\frac{4\theta}{3} = 80$$
$$\theta = 60$$