

National 5: Trigonometric Equations

Q1 Non-calculator. List the other three related angles in the range 0° to 360° .

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| a) 40° | b) 70° | c) 25° |
| d) 100° | e) 150° | f) 225° |
| g) 260° | h) 310° | i) 355° |

Q2 Non-calculator. Given that $\sin 30^\circ = \frac{1}{2}$, write down the values of

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| a) $\sin 150^\circ$ | b) $\sin 210^\circ$ | c) $\sin 330^\circ$ |
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Q3 Non-calculator. Given that $\cos 45^\circ = \frac{1}{\sqrt{2}}$, write down the values of

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| a) $\cos 135^\circ$ | b) $\cos 225^\circ$ | c) $\cos 315^\circ$ |
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Q4 Non-calculator. Given that $\tan 60^\circ = \sqrt{3}$, write down the values of

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| a) $\tan 120^\circ$ | b) $\tan 240^\circ$ | c) $\tan 300^\circ$ |
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Q5 Non-calculator. List each of the following values in order, from smallest to largest:

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| a) $\sin 100^\circ, \sin 90^\circ, \sin 270^\circ, \sin 335^\circ$ |
| b) $\cos 0^\circ, \cos 180^\circ, \cos 350^\circ, \cos 236^\circ$ |
| c) $\tan 65^\circ, \tan 180^\circ, \tan 295^\circ$ |

Q6 Calculator. Solve each equation for $0^\circ \leq x \leq 360^\circ$, correct to 1 decimal place.

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|----------------------------------|---------------------------|----------------------------------|
| a) $\sin x^\circ = 0.3$ | b) $\cos x^\circ = -0.7$ | c) $\tan x^\circ = \frac{2}{5}$ |
| d) $\sin x^\circ = -\frac{3}{8}$ | e) $\cos x^\circ = 0.56$ | f) $\tan x^\circ = -2$ |
| g) $\sin x^\circ = 0.745$ | h) $\cos x^\circ = -0.92$ | i) $\tan x^\circ = -\frac{1}{6}$ |

Q7 Calculator. Solve each equation for $0^\circ \leq x \leq 360^\circ$, correct to 1 decimal place.

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| a) $5 \sin x^\circ = 1$ | b) $3 \cos x^\circ = -2$ | c) $5 \tan x^\circ = 3$ |
| d) $4 \sin x^\circ + 1 = 2$ | e) $7 \cos x^\circ - 2 = 1$ | f) $1 + 4 \tan x^\circ = -6$ |
| g) $3 - 5 \sin x^\circ = 1$ | h) $2 = 5 + 4 \cos x^\circ$ | i) $\frac{1}{2} \tan x^\circ = 3$ |
| j) $4 + 3 \sin x^\circ = 2$ | k) $6 \cos x^\circ + 1 = 3$ | l) $1 + 3 \tan x^\circ = -7$ |