

Name:.....Nº:.....course:.....

1) Solve these

a) $\frac{x-1}{x+1} - \frac{3+x}{x} = 2$

b) $\sqrt{2x-1} + \sqrt{x+4} = 6$

c) $x^4 + 5x^3 + 2x^2 - 20x - 24 = 0$

2) Solve these inequalities:

a)	$\frac{4-3x}{3} - \frac{2x-3}{4} > -\frac{65}{13}$
b)	$\frac{x^2+x}{x-2} > 0$

3) Solve the simultaneous inequalities:

$$\begin{cases} x-6y \leq 3 \\ 5x+y \geq 3 \end{cases}$$

4) Convert the following:

a) 315° to radians (use fractions to express it)

b) $\frac{9\pi}{5}$ radians to degrees

c) 5π radians to degrees

d) 135° to radians

5) Given that $\frac{3\pi}{2} \leq \alpha \leq 2\pi$ and $\cos \alpha = \frac{3}{5}$, find sin α and tan α (Don't find α using your calculator)

6) A pilot flying at an altitude of 2.7 km sights two control towers directly in front of her. The angle of depression to the base of one tower is 40°. The angle of depression to the base of the other tower is 62°. That is the distance between the two towers? Round to the nearest hundredth of a kilometer.

7) Prove the identity:

$$(\sin x) \cdot (\cot x + \cos x \cdot \tan x) = \cos x + \sin^2 x$$

8) Solve this trigonometric equation:

$$\cos^2 x = \sin^2 x$$

1a	1b	1c	2a	2b	3	4	5	6	7	8
0,75	1	0,75	1	1	1	1	1	1,5	0,5	0,5

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7) Prove the identities:

a) $(\sin x) \cdot (\cot x + \cos x \cdot \tan x) = \cos x + \sin^2 x$

b) $\left(\frac{1 + \cos x}{\sin x}\right) = \frac{\sin x}{1 - \cos x}$

8) Solve these trigonometric equations:

a) $\cos^2 x = \sin^2 x$

b) $5 \cos^2 x + \sin^2 x = 4 \cos x$

1a	1b	1c	2	3	4a	4b	5	6	7
0,75	0,75	0,5	1,5	1,5	0,5	1	1	1	1,5