

PICK

NUMIX

Name:

.....

.....

Higher 7+

Paper 1

	Q	Topic	My Mark	Max Marks
Non Calculator	1			6
	2			7
Calculator	3			4
	4			3
	5			3
	6			5
				28

Revision list:

What I need to remember:

A Jagger

Question 1

(a) Work out

$$\left(\frac{16}{25}\right)^{-\frac{3}{2}}$$

.....
[3]

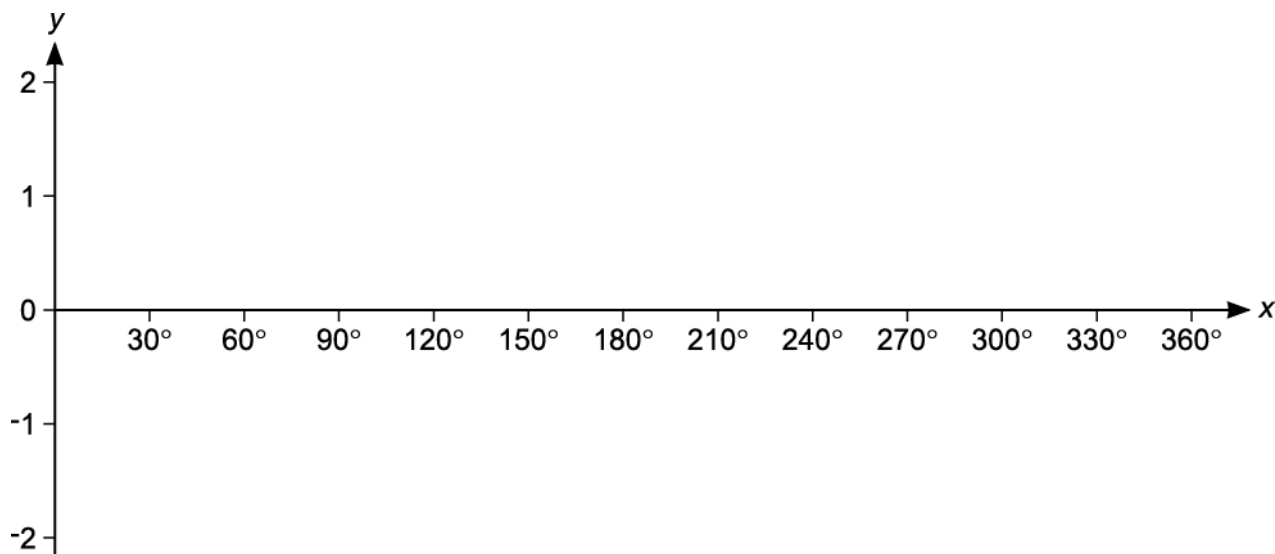
(b) Write this expression as a single power of x.

$$\left(\frac{x^9}{x^{-3}}\right)^{\frac{1}{2}}$$

.....
[3]

Question 2

(a) Sketch the graph of $y = \sin x$ for $0^\circ \leq x \leq 360^\circ$.



[2]

(b) i. Write down the coordinates of the maximum point of $y = \sin x$ for $0^\circ \leq x \leq 360^\circ$.

(..... ,)
[1]

ii. Write down the coordinates of the maximum point of $y = 3 + \sin x$ for $0^\circ \leq x \leq 360^\circ$.

(..... ,)
[1]

(c) One solution to the equation $4 \sin x = k$ is $x = 60^\circ$.

i. Find the value of k .

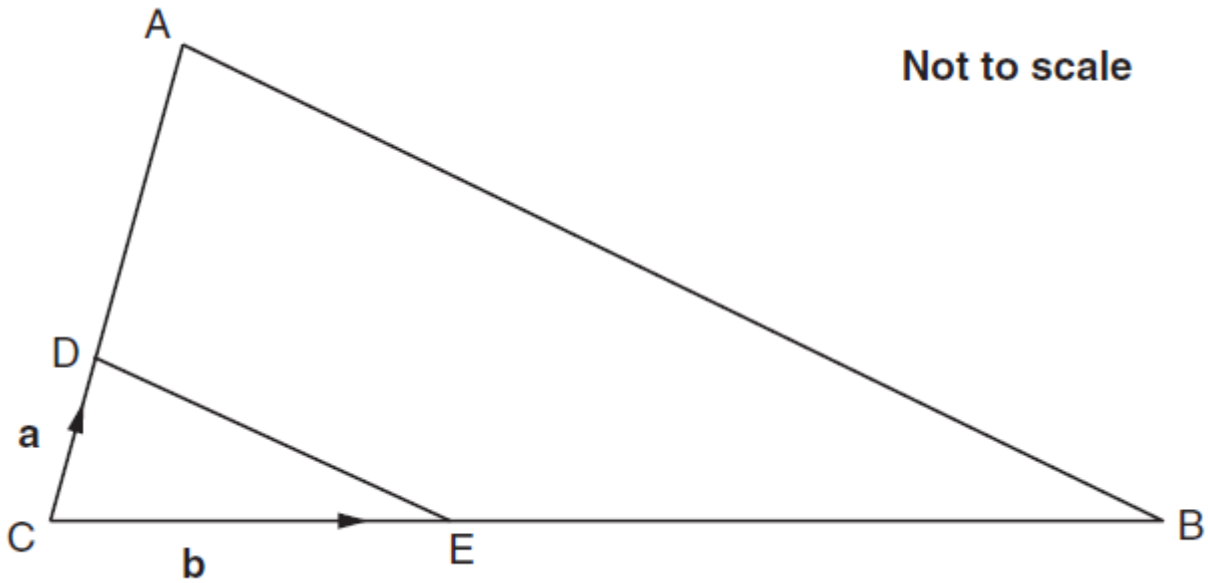
$k = \dots\dots\dots$
[2]

ii. Find another solution for x in the range $0^\circ \leq x \leq 360^\circ$.

$x = \dots\dots\dots^\circ$
[1]

Question 3

In the diagram ABC is a triangle.



D is a point on CA such that $CA = 4CD$

E is a point on CB such that $CB = 4CE$

$\vec{CD} = \mathbf{a}$ and $\vec{CE} = \mathbf{b}$

Show that line DE and AB are parallel.

[4]

Question 4

Show that

$$(3x - 1)(x + 5)(4x - 3) = 12x^3 + 47x^2 - 62x + 15$$

for all values of x .

[3]

Question 5

Solve this equation.

$$3x^2 + 5x - 11 = 0$$

Give your solutions correct to two decimal places

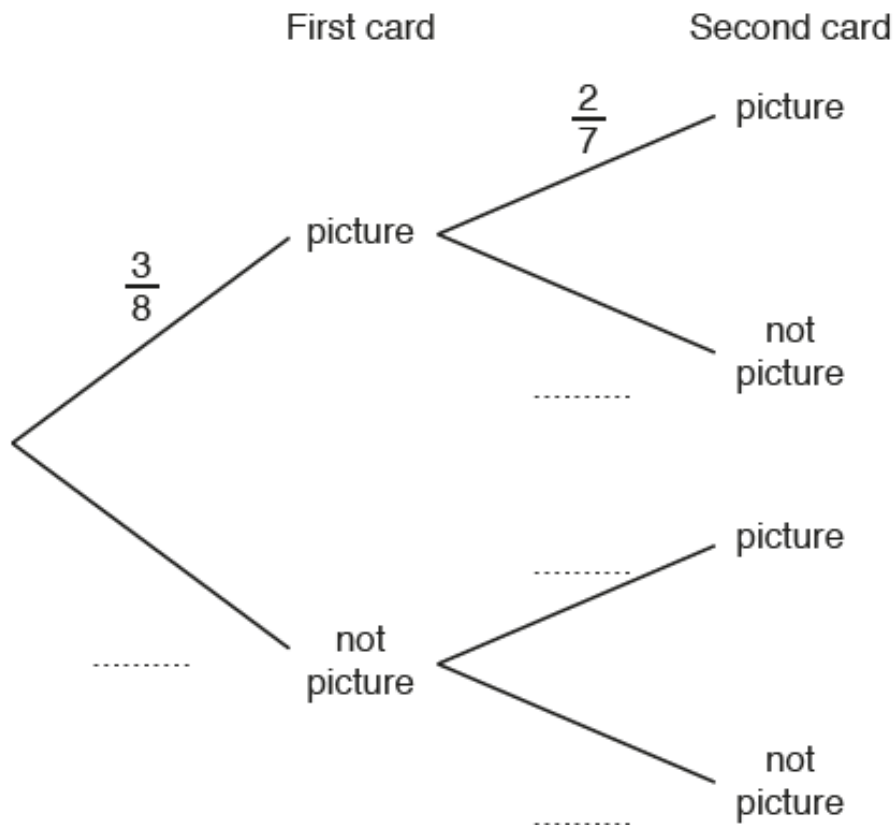
$$x = \dots\dots\dots \text{ Or } x = \dots\dots\dots$$

[3]

Question 6

Gemma has 8 playing cards: 6, 7, 8, 9, 10, Jack, Queen and King. The Jack, Queen and King are called picture cards. She mixes up and picks two cards at random and keeps them both.

(a) Complete the tree diagram below.



[2]

(b) Work out the probability that at least one of her two cards is a picture card.

.....
[3]