Name: _____ 5-a-day Higher Plus

23rd April

Corbettmaths

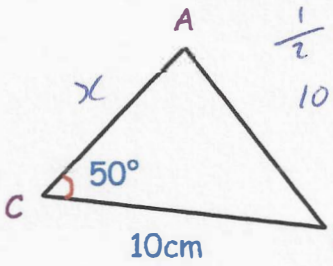
Simplify fully

$$\frac{1}{3x^2 - x - 14} \div \frac{1}{2x^2 - x - 10}$$

$\frac{1}{3x^2-x-14} \times \frac{2x^2-x-10}{1}$

$\frac{2x^2-x-10}{3x^2-x-14} = \frac{(2x-5)(x+2)}{(3x-7)(x+2)}$

$\frac{2x-5}{3x-7}$



$\frac{1}{2} \times 10 \times x \times \sin 50 = 22.981$

$10x \sin 50 = 45.962$

$x \sin 50 = 4.5962$

$x = 6$ cm

The area of ABC is 22.981cm²
Calculate the length of AB

$AB^2 = 6^2 + 10^2 - 2 \times 6 \times 10 \times \cos 50$

$AB^2 = 58.865...$

$AB = 7.6724$ cm

Given

$$f(x) = \frac{1}{2x+1}$$

find $f(3) = \frac{1}{2\times 3+1} = \frac{1}{7}$

Write down a value of x for which f(x) is not defined.

$x = -0.5$

Since $\frac{1}{0}$ is undefined

By using completing the square, find the coordinates of the turning point of the curve with equation
$y = x^2 - 12x - 3$

$(x-6)^2 - 36 - 3$

$y = (x-6)^2 - 39$

(6, -39)

The first 5 terms in a quadratic sequence are:

8, 11, 16, 23, 32

(+3, +5, +7, +9; +2, +2, +2)

$2a = 2$

$a = 1$

$3a + b = 3$

$b = 0$

Find the first term in the sequence which is greater than 400

$a + b + c = 8$

$1 + c = 8$

$c = 7$

$n^2 + 7$

$n^2 + 7 > 400$

$n^2 > 393$ n cannot be negative

$n > 19.824...$

20th term