Name: _____ 5-a-day Higher Plus

**29th March**

Corbettmaths

Estimate

$50^{-\frac{3}{2}}$ $\frac{1}{50^{3/2}} \approx$

$\frac{1}{343}$

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The first 5 terms of a quadratic sequence are: 4, 10, 18, 28, 40

6 8 10 12

2 2 2

Work out the difference between the 10th and 20th terms.

$a = 1$
$b = 3$
$c = 0$

$n^2 + 3n$

10th term : 130
20th term : 460
460 - 130 = 330

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There are x apples in a crate.
4 of the apples are bad.

Fiona chooses two apples from the crate, without replacement.
The probability she selects two bad apples is $^1/_{11}$

Prove

$x^2 - x - 132 = 0$

$\frac{4}{x} \times \frac{3}{x-1} = \frac{1}{11}$

$\frac{12}{x(x-1)} = \frac{1}{11}$

$132 = x^2 - x$

$0 = x^2 - x - 132$

Find x, the number of apples in the crate.

$(x + 11)(x - 12) = 0$

$x = -11$ $x = 12$ ✓

(x)

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Find where the tangent to the circle $x^2 + y^2 = 160$ at the point (4, –12) meets the x-axis.

gradient of radius to (4, -12) = -3

gradient of tangent = $\frac{1}{3}$

$y = \frac{1}{3}x + c$

$-12 = \frac{4}{3} + c$ $c = -\frac{40}{3}$

$y = \frac{1}{3}x - \frac{40}{3}$

$0 = \frac{1}{3}x - \frac{40}{3}$ $\frac{1}{3}x = \frac{40}{3}$

$x = 40$ (40, 0)