QuicK WitS

HigHer 4

Index Notation

Simplify Fully:
1) $3a^3b^2 \times a^5b^6$

2) $\dfrac{6f^5g^3}{3f^2g^3}$

3) Evaluate $27^{\frac{2}{3}}$

Percentages and Fractions of Amounts

1) $\frac{1}{3}$ of £252

2) 40% of £420

Nth Term Rule

1) Work out the nth term rule of this sequence.

$$5, 8, 11, 14, \ldots$$

2) If n is the term. What is the first integer value of n where the sequence $2n^2$ is greater than 50.

Probability

There are 300 balls in a bag in total.
In the bag there are 40 more red balls than blue balls.
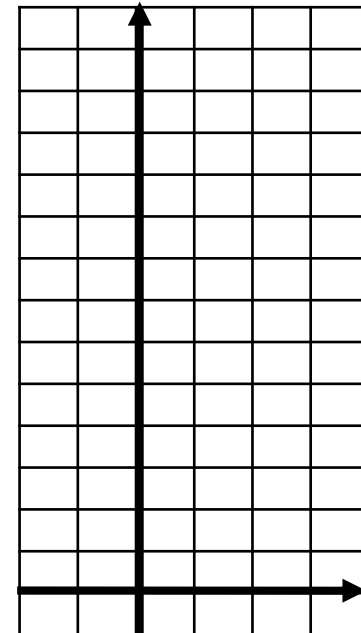How many blue balls are in the bag?

Expand and Factorise

1) Expand $6(3 - x)$

2) Factorise $9x - 45x^2$

Drawing Graphs

Plot the graph $y = 10 - 3x$ for $-1 \leq x < 2$.

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Quick Wits

Index Notation

Simplify Fully:
1) $3a^3b^2 \times a^5b^6$
   $= 3a^8b^8$

2) $\dfrac{6f^5g^3}{3f^2g^3} = 2f^3$

3) Evaluate $27^{\frac{2}{3}}$
   $= \left(\sqrt[3]{27}\right)^2 = 3^2$
   $= 9$

Percentages and Fractions of Amounts

1) $\frac{1}{3}$ of £252
   $252 \div 3 = £84$

2) 40% of £420
   $420 \times 0.4 = £168$

Nth Term Rule

1) Work out the nth term rule of this sequence. $3n + 2$
   $5, 8, 11, 14, \ldots$

2) If n is the term. What is the first integer value of n where the sequence $2n^2$ is greater than 50.
   $2n^2 > 50$
   $n^2 > 25$
   $n > \pm 5$
   $n = 6$

Probability

There are 300 balls in a bag in total. In the bag there are 40 more red balls than blue balls. How many blue balls are in the bag?

Blue = x Red = $x + 40$
   $x + x + 40 = 300$
   $2x + 40 = 300$
   $2x = 160$
   $x = 80$

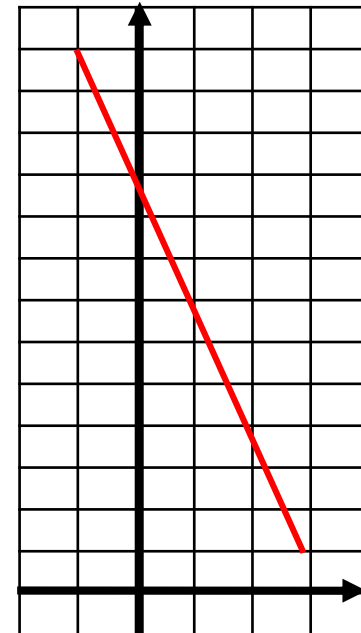## Expand and Factorise

1) Expand $6(3 - x)$
   $18 - 6x$

2) Factorise $9x - 45x^2$
   $9x(1 - 5x)$

Drawing Graphs

Plot the graph $y = 10 - 3x$ for $-1 \leq x < 2$.

ANSWers