Solve the inequality $2(3x - 5) \geq 43$

Jennifer has 72 DVDs. This number of DVDs is 80% more than the number she had last month. How many DVDs did Jennifer have last month?

Sketch $y = \frac{1}{x}$ where $x \neq 0$

Complete the table of values and draw a graph

<table>
<thead>
<tr>
<th>$x$</th>
<th>0.5</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>$y$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Solve
\[ \frac{16 - x}{5} = 2 + x \]

Calculate the volume. Give your answer in terms of \( \pi \)

Work out the estimated mean

Work out the area of the logo.

Work out \( 2a - 3b \)

\[ a = \begin{pmatrix} 6 \\ -4 \end{pmatrix}, \quad b = \begin{pmatrix} -2 \\ 1 \end{pmatrix} \]
<table>
<thead>
<tr>
<th>3rd July</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Make ( t ) the subject of the formula</strong></td>
</tr>
<tr>
<td>[ v = u + 10t ]</td>
</tr>
</tbody>
</table>

| **Shown is a regular hexagon and a regular octagon.** |
| **Calculate the size of angle \( y \).** |
| ![Regular hexagon and octagon](image) |

| **Candles normally cost £6 each.** |
| **Two websites have special offers** |
| **Corbettmaths Candles** | **Candles’R’us** |
| **Buy 3 get 1 free** | **20% off** |

| **Laura wants to buy 30 candles.** |
| **Which website should Laura use?** |

| **Martin runs 3 kilometres in 5 minutes.** |
| **Calculate his average speed.** |
| **Give your answer in m/s** |

| **ABC and LMN are congruent triangles.** |
| **Angle \( B \) = Angle \( N \)** |
| **Write down the length of \( LM \).** |
| ![Congruent triangles](image) |
4th July

A can of paint covers $6\frac{5}{8}$ m$^2$.

Jenny wants to paint an area of 50 m$^2$.

How many cans of paint does she need?

Solve

$$x^2 + 5x + 4 = 0$$

Calculate the mean number of goals per match.

<table>
<thead>
<tr>
<th>Goals</th>
<th>Number of matches</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

Calculate the length of the line ST.

The Highest Common Factor (HCF) of two numbers is 6. The Lowest Common Multiple (LCM) of the same numbers is 60.

What are the two numbers?
5th July

ABC is a garden. A tree is planted closer to wall AB than wall BC.
Show the possible locations the tree can be planted.

How long will it take an athlete to run 6000m at an average speed of 3 metres per second?
Give your answer in minutes and seconds.

Solve the simultaneous equations

\[5x - 2y = 4\]
\[3x - 6y = 6\]
<table>
<thead>
<tr>
<th>6th July</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[5 - 4\frac{1}{4}]</td>
</tr>
<tr>
<td></td>
<td>Triangle CDE is isosceles.</td>
</tr>
<tr>
<td></td>
<td>CD is parallel to FE.</td>
</tr>
<tr>
<td></td>
<td>Angle CED = 30°</td>
</tr>
<tr>
<td></td>
<td>Work out the size of angle x.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Describe fully the single transformation that maps shape A onto shape B.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A cube has side length y cm.</td>
</tr>
<tr>
<td></td>
<td>The volume of the cylinder is double the volume of the cube.</td>
</tr>
<tr>
<td></td>
<td>Find y</td>
</tr>
</tbody>
</table>
Solve
\[ 5(x - 1) - 4(x + 2) = 2(x - 7) \]

State the condition why these triangles are congruent.

Sebastian leaves £3000 in the bank for two years. It earns compound interest of 2% per year.

Calculate the total amount Sebastian has in the bank at the end of the two years.
### 8th July

<table>
<thead>
<tr>
<th>Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1\frac{1}{3} \times 2\frac{2}{5}$</td>
</tr>
</tbody>
</table>

### Work out the volume of the cone.

![Cone Diagram]

- $\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$
- $A = \{\text{square numbers}\}$
- $B = \{\text{multiples of 4}\}$

Draw a Venn diagram for this information.

<table>
<thead>
<tr>
<th>Find $x$</th>
</tr>
</thead>
</table>

### Find the perimeter of the rectangle

### Find the area of the rectangle
## 9th July

Use the fact 5 miles = 8 kilometres to draw a conversion graph on the grid.

Use your graph to convert 6 kilometres to miles.

\[ \xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\} \]

\[ A = \{\text{numbers less than 4}\} \]

\[ B = \{\text{prime numbers}\} \]

Draw a Venn diagram for this information.

Write three thousandths in standard form.

Write 34000000 in standard form.

How much longer does it take to travel 100 miles at 60mph than 70mph?

Give your answer in minutes and seconds.
### 10th July

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Another student scored 45% in Art. Estimate their score in Maths.</td>
<td></td>
</tr>
<tr>
<td>Another student scored 10% in Maths. Estimate their score in Art.</td>
<td></td>
</tr>
<tr>
<td>A regular polygon has 30 sides. Calculate the size of each interior angle.</td>
<td></td>
</tr>
<tr>
<td>Solve the simultaneous equations</td>
<td></td>
</tr>
</tbody>
</table>

#### Graph

![Graph](image)

#### Diagram

![Diagram](image)

#### Equations

\[
5x - 3y = 10 \\
3x - y = 9
\]
Eleven students sit examinations in Art, Maths and Biology. Information about the results are shown in the scatter graphs below.

<table>
<thead>
<tr>
<th>Describe the correlation between the biology scores and art scores.</th>
<th>Describe the correlation between the biology scores and maths scores.</th>
</tr>
</thead>
</table>

A container exerts a force of 400 Newtons on the floor. The pressure on the table is 80 Newtons/m².

Calculate the area of the container that is in contact with the table.

5.16 has been truncated to two decimal places.

Write down an inequality to show the range of possible actual values.
Write down the inequality shown on the number line

Factorise $x^2 - 2x - 24$

In the space below, use ruler and compasses to construct an equilateral triangle with sides of length 3.5cm.

A fish tank has sprung a leak, at the base of the tank.
3% of the water is lost every minute.

How much water is lost from the tank after ten minutes?
### 13th July

<table>
<thead>
<tr>
<th>Calculate the force if the pressure is 500N/m² and the area is 20m²</th>
</tr>
</thead>
</table>

| Sarah is x years old.  
Thomas is 3 years older than Sarah.  
David is twice as old as Sarah.  
The total of their ages is 51. |
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Write an expression for Thomas’s age in terms of x.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Write an expression for David’s age in terms of x.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form an equation in x and solve it to work out Sarah’s age.</td>
</tr>
</tbody>
</table>

| Miss Black completes a journey in 3 stages.  
In stage 1, she drives at a speed of 40km/h for 45 minutes.  
In stage 2, she drives at 60 km/h for 2 hours 9 minutes.  
Altogether, over the 3 stages, Miss Black drives 171.6km in 3 hours 15 minutes  
What is her average speed, in km/h, in stage 3? |
|-------------------------------------------------|

© Corbettmaths 2015

www.corbettmaths.com
### 14th July

Jessica wants to attach ribbon around her wardrobe.

She has 4 metres of ribbon.

How much more does she need?
Give your answer as a fraction.

<table>
<thead>
<tr>
<th>2 m</th>
<th>1 3/4 m</th>
</tr>
</thead>
</table>

A newspaper says the number of people at a football match is 40,000.
This is correct to the nearest 1000.

What is the lowest possible number of people at the match?

Factorise

\( y^2 + 8y + x^2y \)

An octagon-based pyramid has a height of 18 cm.
The area of the octagon base is 20 cm².
Calculate the volume of the pyramid.

The population of a town in 1930 was 400.

Every 10 years the population of the town increases by 10%.

Work out the population in 2020.

© Corbettmaths 2015
15th July

A light flashes every 42 seconds. A buzzer buzzes every 2 minutes. They both operate, how long until they both operate again?

Work out

\[
\frac{(y - 2)^2}{4y}
\]

if \( y = 3.2 \)

\[
1 \frac{4}{7} \div 1 \frac{1}{4}
\]

Factorise \( x^2 + 11x + 18 \)

Factorise \( x^2 - 16 \)

Solve the inequality \( 5x + 11 < 2x + 27 \)
16th July

Expand and simplify

\((x - 7)^2\)

Make \(c\) the subject of

\(v = \pi c^2 h\)

<table>
<thead>
<tr>
<th>Number of spins</th>
<th>Relative frequency of a green</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>0.12</td>
</tr>
<tr>
<td>200</td>
<td>0.17</td>
</tr>
<tr>
<td>300</td>
<td>0.21</td>
</tr>
<tr>
<td>400</td>
<td>0.23</td>
</tr>
<tr>
<td>500</td>
<td>0.22</td>
</tr>
</tbody>
</table>

How many greens were obtained after 300 spins?

Which number of spins gives the most reliable relative frequency?

Shown are four terms in a Fibonacci sequence

1 1 2 3

Write down the next four terms
### 17th July

Calculate the surface area

Solve

\[ x^2 - 2x - 24 = 0 \]

Find \( x \)

Find \( y \)

A limited edition bag of flour contains 25% more than the standard bag. The limited edition bag contains 650g of flour.

How much flour is in the standard bag?
<table>
<thead>
<tr>
<th>18th July</th>
</tr>
</thead>
<tbody>
<tr>
<td>A train leaves a train station every 12 minutes.</td>
</tr>
<tr>
<td>A bus leaves a bus station every 14 minutes.</td>
</tr>
<tr>
<td>At 11am a train and a bus both leave the station.</td>
</tr>
<tr>
<td>The area of a circle is 20cm²</td>
</tr>
<tr>
<td>Work out the circumference.</td>
</tr>
</tbody>
</table>

\[(1, 10)\]
\[A\]

\[(5, 1)\]
\[B\]

Find the midpoint of AB

Expand and simplify
\[(x - 3)^2\]

Solve
\[x^2 + 8x - 9 = 0\]
19th July

Work out

\[ \sqrt{16} \]

There are 700 students in a school. A teacher says that the ratio of boys to girls is 5:4.

Explain why the teacher is incorrect.

Shown are two regular polygons.

Find x

The speed limit on a road is 50 mph. A car drives 20 miles in 22 minutes. Is the car breaking the speed limit?
20th July

Find the area of the sector.

\[
\text{Area of sector} = \frac{45^\circ}{360^\circ} \times \pi \times 8^2
\]

ABCDEF is regular hexagon.

Find x.

Solve \(3x^2 = 75\)

James has organised a game to raise money for charity at a local fair. He rolls a fair six sided dice and flips a fair coin.

If the coin lands on heads, the number on the dice is squared.

If the coin lands on tails, the number on the dice is cubed.

Each person pays £1 to play.
If they score above 30, they win £2
The game is played 800 times.

How much money should James raise for charity?
21st July

The probability of someone having brown eyes is 0.5 and the probability of someone having green eyes is 0.14.

What is the probability that someone at random has either brown or green eyes?

150 people are chosen at random. Work out an estimate for the number of people who will have green eyes.

<table>
<thead>
<tr>
<th>Find y</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="https://via.placeholder.com/150x150" alt="Diagram" /></td>
</tr>
</tbody>
</table>

Explain why regular octagons will not tessellate.

Calculate the length of PR.

Calculate the surface area
22nd July

Solve $7x + 3 = 30 - 3x$

Solve these simultaneous equations

\[
\begin{align*}
3x - 4y &= 18 \\
2x - 5y &= 19
\end{align*}
\]

Calculate the mass of a piece of metal that has a volume $100\text{cm}^3$ and density $4.7\text{g/cm}^3$

Jennifer is playing darts. She throws two darts aiming for a Bullseye. The probability Jennifer hits the Bullseye on her first throw is $\frac{1}{4}$. The probability she hits the Bullseye on her second throw is $\frac{2}{3}$.

Complete the tree diagram.

Jennifer is playing darts. She throws two darts aiming for a Bullseye. The probability Jennifer hits the Bullseye on her first throw is $\frac{1}{4}$. The probability she hits the Bullseye on her second throw is $\frac{2}{3}$.

Work out the probability Jennifer hits the Bullseye at least once.
23rd July

Factorise

\( y^2 - 25 \)

How tall is the tree?

Below are the first two terms of a geometric sequence.

5 10 __ __ __

Find the next three terms

\( \xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13\} \)

M = Multiples of 2
F = Factors of 18

Complete the Venn diagram

A number is chosen at random
Find \( P(M \cup F) \)

A number is chosen at random
Find \( P(M \cap F) \)

© Corbettmaths 2015  
www.corbettmaths.com
<table>
<thead>
<tr>
<th>24th July</th>
</tr>
</thead>
</table>
| The $n$th term of a sequence is $(n + 1)(n + 3)$  
Work out the first three terms of the sequence. |

| A sphere has radius 4cm.  
Calculate the volume of the sphere.  
Give your answer to 1 decimal place. |

| There are 30 students in class 1.  
There are 18 students in class 2.  
Both classes sit the same test.  
The mean mark in class 1 is 80%.  
The mean mark in class 2 is 62%  
Work out the overall mean for both classes. |

| Solve $4x - 1 < 9 - x$  
Represent the answer on the number line |

| Calculate the volume of the cone. |

© Corbettmaths 2015  
www.corbettmaths.com
### 25th July

<table>
<thead>
<tr>
<th><strong>Problem</strong></th>
<th><strong>Solution</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Solve $2(5 - 2x) = 5 + 6x$</td>
<td></td>
</tr>
<tr>
<td>Write $0.0000434$ in standard form</td>
<td>Write $9800000$ in standard form</td>
</tr>
<tr>
<td>Calculate the length of $BC$</td>
<td></td>
</tr>
<tr>
<td>The Earth and the Sun are $1500000000km$ apart. <strong>Write this number in standard form</strong>.</td>
<td>Convert $1500000000km$ into metres. <strong>Write the answer in standard form</strong>.</td>
</tr>
<tr>
<td>Solve these simultaneous equations</td>
<td></td>
</tr>
</tbody>
</table>
| $2x + 5y = 4$  
$3x + 4y = 13$ |  |

© Corbettmaths 2015

[www.corbettmaths.com](http://www.corbettmaths.com)
<table>
<thead>
<tr>
<th>26th July</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factorise $x^2 - 7x + 12$</td>
</tr>
<tr>
<td>The ratio of teachers to children needed on a school trip is 1:7</td>
</tr>
<tr>
<td>81 children want to go on the trip.</td>
</tr>
<tr>
<td>What is the smallest number of teachers needed?</td>
</tr>
<tr>
<td>Calculate the volume of the pyramid.</td>
</tr>
<tr>
<td>Solve $y^2 - 7y - 18 = 0$</td>
</tr>
<tr>
<td>A radioactive substance decays over time. Every year its mass decreases by 14%.</td>
</tr>
<tr>
<td>How many years will it take for 500kg of the substance to decay to a mass less than 200kg?</td>
</tr>
</tbody>
</table>
Find the perimeter of the rectangle.

James bought a house. In the first year the value of the house decreased by 5%. In the second year the value of the house increased by 5%.

Is the house worth more, less, or the same as what James paid for it?

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>0&lt;A≤10</td>
<td>5</td>
</tr>
<tr>
<td>10&lt;A≤20</td>
<td>9</td>
</tr>
<tr>
<td>20&lt;A≤40</td>
<td>6</td>
</tr>
</tbody>
</table>

Calculate an estimate of the mean.

Shown is a logo.

Calculate the area of the logo.
### 28th July

**Problem 1:**
In a drink, 20% of the liquid is orange juice. The rest of the drink is lemonade. Write down the ratio of orange juice to lemonade. Give your answer in the ratio 1:n.

**Problem 2:**
Expand and simplify

\[(5w - 1)(2w - 3)\]

**Problem 3:**
There are green and blue counters in a container. Kevin takes at random a counter from the container. He replaces the counter in the container. Kevin takes at random a second counter from the container. Work out the probability Kevin picks counters that are the same colour.

**Problem 4:**
There are 20 students in class 1. There are 10 students in class 2. Both classes sit the same test. The mean mark in class 1 is 64%. The mean mark for all 30 students is 60%. Work out the mean mark in class 2.
The mass of an object is measured at 7g to the nearest gram.

Complete the following statement to show the range of possible values of m.

\[ \text{l} \leq m < \text{r} \]

It takes 9 hours for 40 workers to seed 80 acres. How long would it take 15 people to seed 30 acres?

A rugby club, R, has bearing of 110° from town A. The rugby club, R, has bearing 245° from town B. Mark the position of the rugby club with a cross (x) and label it R.

Shown is one angle from a regular polygon. How many sides does it have?
30th July

\[ \binom{m}{8} \times \binom{n}{8} = \binom{m}{8} \]

Find three different pairs of values for m and n

---

What is the probability of 2 losses?

What is the probability of exactly one win?

---

Complete the tree diagram.

---

Work out

\[ \frac{\pi}{5} + \frac{\pi}{2} \]

Give your answer in terms of \( \pi \)

---

Shown is part of a regular polygon. How many sides does it have?

174°
### 31st July

#### Solve

\[3(x + 8) = x + 6\]

#### Complete the probability tree diagram.

Complete the probability tree diagram.

There are green and blue counters in a container. Kevin takes at random a counter from the container. He replaces the counter in the container. Kevin takes at random a second counter from the container.

#### Work out the probability that Kevin picks counters that are different colour.

Work out the probability that Kevin picks counters that are different colour.

#### Solve

\[2x - 9 < 4\]

If \(x\) is a positive integer, write down all the values of \(x\) which satisfies \(2x - 9 < 4\).

#### In a sale, all holidays are reduced by 15%. If a holiday in the sale costs £697, what was the normal price of the holiday?

In a sale, all holidays are reduced by 15%. If a holiday in the sale costs £697, what was the normal price of the holiday?