

Independent Study Pack 9.1



Please work through this booklet so that it can be marked and feedback given.

- ✓ Use your own workbook to complete the tasks.
- ✓ Use the booklet to complete the tasks.


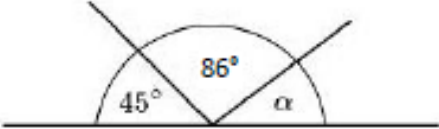


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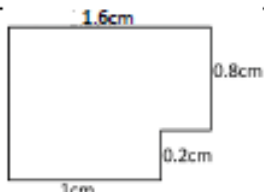
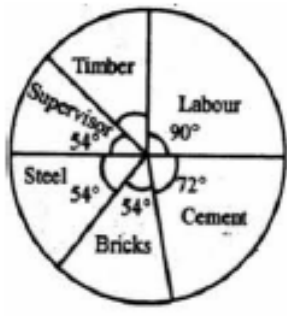
VMG

Maths:

Complete 1 hour on Hegarty maths. Your teacher will be able to see what you have completed and give you feedback.



<p>1. 4×5^2</p>	<p>2. Function Machines</p> 
<p>3. For every 7 boys on a softball team there are 2 girls. What is the ratio of boys to girls?</p>	<p>4. The perimeter of a rectangle is 244 inches. The width is 36 inches. What is the length of the rectangle?</p>
<p>5. What is the probability of choosing a green marble from a jar containing 4 red, 9 green and 3 blue marbles?</p>	<p>6. Mr Smith kept a record of the number of absences for each student in his class for one term. Here are his results. 0 0 0 8 4 5 5 3 2 1 5 3 5 2 Write down the mode.</p>
<p>7. Express 175 as a product of it's prime factors.</p>	<p>8. Write the next three terms of the following sequence 16, 8, 4, __, __, __</p>
<p>9. If I need 65g of flour to make 20 breadsticks, how much flour would I need to make 140 breadsticks?</p>	<p>10. What is the size of angle α</p> 
<p>11. The highest mark in the Science test was 88. Three students scored 46 which was 6 marks higher than the lowest score. What was the range of the scores?</p>	<p>12. If the probability picking a green marble from a bag of green and red marbles is 0.4. If I choose a marble 100 times and replace it each time, how many times would I expect to pick a green marble?</p>
<p>13. Order the following from smallest to largest. 0.76, 0.706, 0.7, 0.60, 0.067</p>	<p>14. Find the value of the following expression if $a = 7$, $b = 6$ and $c = 12$. $a + b + c$</p>
<p>15. What is the difference between the perimeter and area of the following square?</p> 	<p>16. You have a pair of dice. Find the probability of rolling a prime number on both dice.</p>
<p>17. Katie earns £45 per week for her part-time job. She is to be given a 10% pay rise. How much will she earn per week after the pay rise?</p>	<p>18. Solve the following equation: $-32 = x + 9$</p>
<p>19. What is 12.5 L in ml?</p>	<p>20. Based on the pictogram below, how many cupcakes were eaten on Thursday?</p> 

<p>1. $4 + 6 \times 7 - 11$</p>	<p>2. Function Machines</p> 
<p>3. The ratio of male to female birds in a bird cage was 5:2. For every 63 males there are _____ females.</p>	<p>4. If a square has sides of 2cm each, what is the area of the square in millimetres?</p>
<p>5. What is the probability of getting a 9 after rolling a single die numbered 1 to 6?</p>	<p>6. Mr Smith kept a record of the number of absences for each student in his class for one term. Here are his results. 0 0 0 8 4 5 5 3 2 1 5 6 7 2 4 Work out the mean.</p>
<p>7. Express 112 as a product of it's prime factors.</p>	<p>8. What is the nth term rule of the following sequence 15, 10, 5, 0, -5, -10</p>
<p>9. If I need 105ml of milk to make 15 pancakes, how much milk do I need to make 30 pancakes?</p>	<p>10. Calculate the size of angle β</p> 
<p>11. Seven people took part in a sponsored swim. The number of lengths they completed were 16, 11, 8, 8, and 14, 16, 13. What is the median number of lengths completed?</p>	<p>12. A fair die is rolled 180 times, how many times would I expect it to either land on an odd number.</p>
<p>13. Order the following from smallest to largest: $\frac{2}{3}$, $\frac{3}{5}$, $\frac{13}{15}$, $\frac{2}{5}$</p>	<p>14. Find the value of the following expression if $a = 6$, $b = 12$ and $c = 9$. $c - b + a$</p>
<p>15. What is the perimeter of the shape?</p> 	<p>16. You have a deck of cards. Find the probability of drawing a red card on the first draw, replacing it and drawing a number less than 5 on the second draw.</p>
<p>17. Increase £270 by 35%</p>	<p>18. Solve the following equation: $5x + 8 = 53$</p>
<p>19. What is 19,580g in kg?</p>	<p>20. The pie chart shows the what costs are involved building a house. What fraction of the total is cement?</p> 

A series of 20 horizontal lines for writing.

Teacher feedback

English - England's most-capped player

Reading comprehension : Read the extract and answer the questions in as much detail as possible.

Arsenal Ladies star Yankey overtakes Shilton record with 126th England cap but neither achievement should be compared

It will be a quiz question that will perplex even the geekiest of football fans: 'Who is England's **most capped** player?'

'Easy, Peter Shilton,' the chaps in the pub will say, scribbling down the name of the twice European Cup-winning goalkeeper, a man who played 125 times for his country during a 20-year international career.

Wrong. Sorry fellas, you didn't even manage to get the gender right: it's Rachel Yankey now. Most people will not have even heard of Yankey, the Arsenal midfielder who made history by winning her 126th England cap in a 1-1 draw against world champions Japan, but the accolade is now – strictly speaking – hers and hers alone.

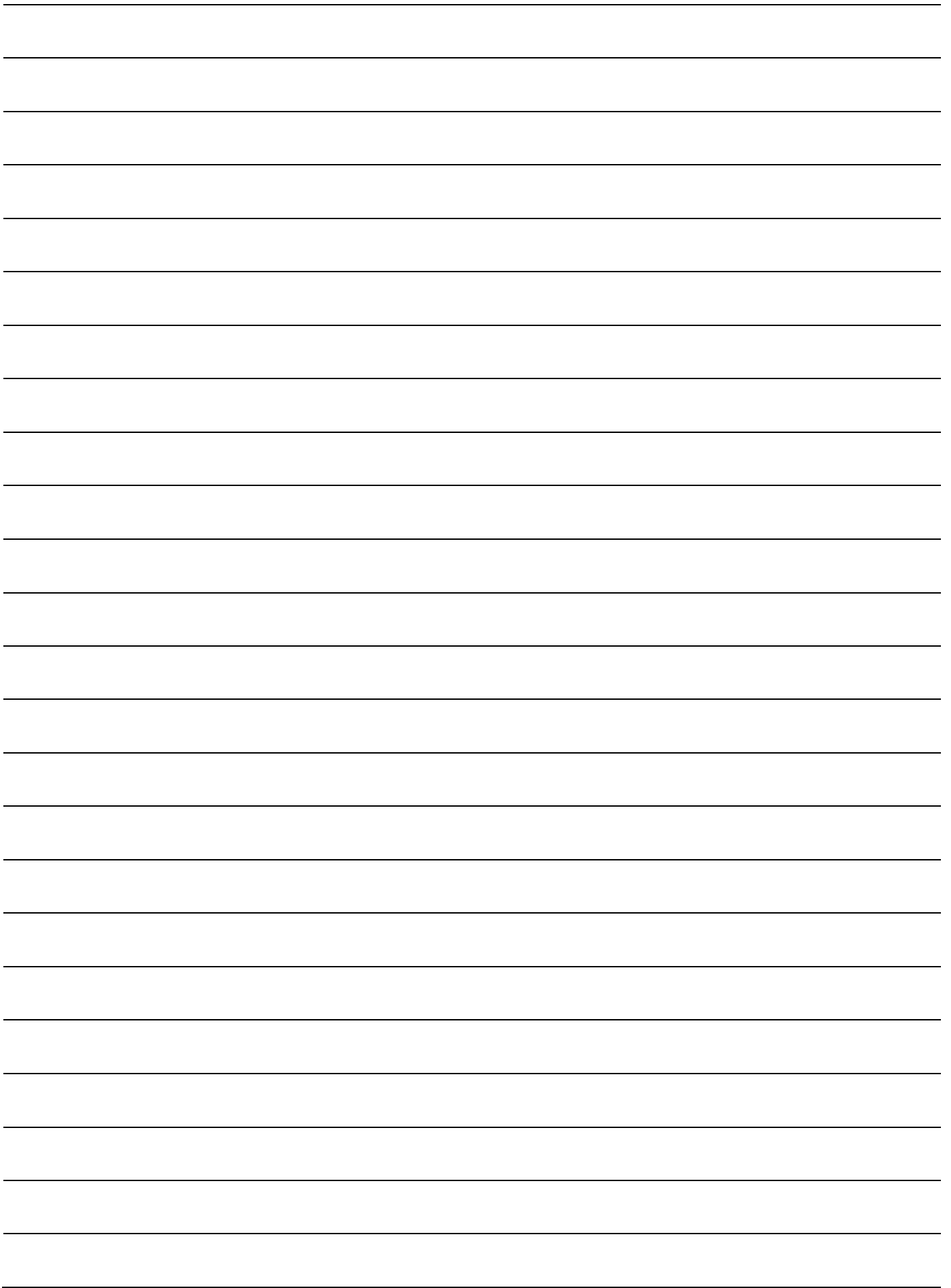
Congratulations to Yankey on a remarkable achievement, but consider this: Shilton's last game was the 1990 World Cup third place play-off defeat by Italy. Yankey's record breaking feat came in a friendly in front of 4,500 school children taking advantage of free tickets at Burton Albion's Pirelli Stadium. Please let us not do either player a disservice by trying to compare the two.

I involuntarily cringe when I hear television and radio presenters ticking the equal opportunities box by lauding Yankey as England's 'most capped player of all time'. It might be technically true, but it is downright disrespectful to assume Shilton's 23 year old record should be scrubbed out and forgotten. If Shilton ventured this opinion he would no doubt be labelled as a sexist lout, so I'm going to argue on his behalf.

Yes he was a goalkeeper, but he also happened to be a professional sportsman vying to be his country's No1 in the same era as Ray Clemence. It is insulting to see those memories – the three World Cups, two European Championships and 65 clean sheets – erased in the rush to be politically correct. The tenuous comparison with Yankey's career is almost painful.

This is, however, in no way intended to disparage Yankey's achievement. She is a stunningly talented player in her own right a footballer who has been at the forefront of a quiet evolution in women's football during her 17 year career in an England shirt.

Laura Williamson, *Mail Online*, Wednesday 2 October 2013



Science:

Produce a mindmap on the different forms of energy. Use the next page.

Energy

ENERGY exists in many FORMS. These are the most common ones:

LIGHT

- Energy given out by ANY HOT OBJECT (and some cold ones).
- We need light to SEE and plants use it for PHOTOSYNTHESIS.
- The SUN and LIGHT BULBS give out light energy.



SOUND

- Energy created by ANY VIBRATING OBJECT.
- We use sound to communicate with each other.
- Our VOCAL CHORDS and LOUDSPEAKERS create sound energy.



ELECTRICAL

- Our most convenient form of energy.
- Nearly all appliances in the home need electrical energy to work.
- A BATTERY and a GENERATOR (in a POWER STATION) are sources of electrical energy.



THERMAL (or HEAT)

- The thermal energy contained in any WARM or HOT OBJECT depends on ...
- ... the TEMPERATURE AND SIZE of the object.
- BURNING COAL and HOT WATER contain thermal energy.



KINETIC (or MOVEMENT)

- The energy an object has because it is MOVING.
- The FASTER it moves the greater its kinetic energy.
- A RUNNER or a MOVING CAR has kinetic energy.



CHEMICAL POTENTIAL

- Energy contained in FOOD or any FUEL (or even a battery come to that!)
- The energy in FOOD is RELEASED when we respire in our cells, ...
- ... and the energy in FUEL is RELEASED when it is burned.



GRAVITATIONAL POTENTIAL

- The energy an object has due to its height above the earth's surface.
- The HIGHER UP it is, the greater its potential energy (due to earth's gravitational pull).
- A SKIER at the top of a mountain has gravitational potential energy.



ELASTIC POTENTIAL

- This is the energy stored due to stretching or compressing an object ...
- ... which has the ability to regain its original shape and size (i.e. is ELASTIC).
- Springs, catapults and longbows can store elastic potential energy.



