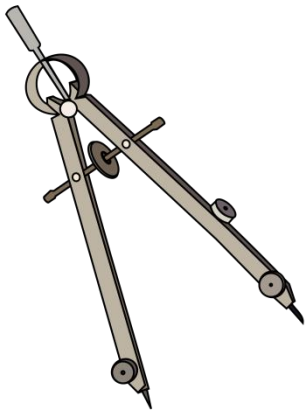
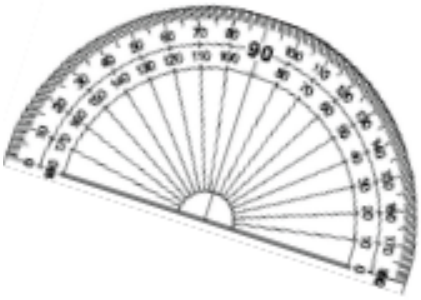
Plymouth High School for Girls

"For life, not school, we learn"



# Are you ready for year 7 maths at PHSG?



Name :_____

Welcome to PHSG.

Please complete the activities in this booklet before you start in September.

There are a variety of challenges for you to complete.

GOOD LUCK and ENJOY.

***Key terms***

Please write down the definitions for each of these key terms that you will be covering in year 7.

Make sure you know how to spell them correctly.

| | |
|---|---|
| Prime number | |
| Factor | |
| Multiple | |
| Horizontal | |
| Vertical | |
| Hundredth | |
| Negative | |
| Positive | |
| Indice | |
| Estimate | |
| Integer | |
| Square number | |
| Cube number | |
| Triangular number | |

**Show me your methods for multiplication and division**

*This page should take you under half an hour.*

| | |
|---|---|
| **23 x 34** | **234 ÷ 6** |
| **345 x 241** | **374 ÷ 11** |
| **1234 x 546** | **2564 ÷ 12** |
| **12.7 x 3.4** | **3.52 ÷ 0.8** |

**Fractions**

Without using a calculator please answer the following.

*This page should take you under half an hour.*

1) $\frac{4}{5} + \frac{2}{5} =$

2) $\frac{6}{13} - \frac{4}{13} =$

3) $\frac{6}{10} - \frac{1}{5} =$

4) $\frac{7}{8} + \frac{1}{16} =$

5) $\frac{5}{8} \times \frac{1}{2} =$

6) $\frac{3}{7} \div \frac{2}{5} =$

7) Cancel $\frac{35}{56}$ down to its lowest terms.

8) Cancel $\frac{60}{80}$ down to its lowest terms.

9) What is $\frac{5}{7}$ of £ 35 ?

10) What is $\frac{3}{10}$ of 340 ?

11) Convert this fraction from Mixed to Improper. $4\frac{3}{4}$

12) Convert this fraction from Improper to Mixed. $\frac{34}{5}$

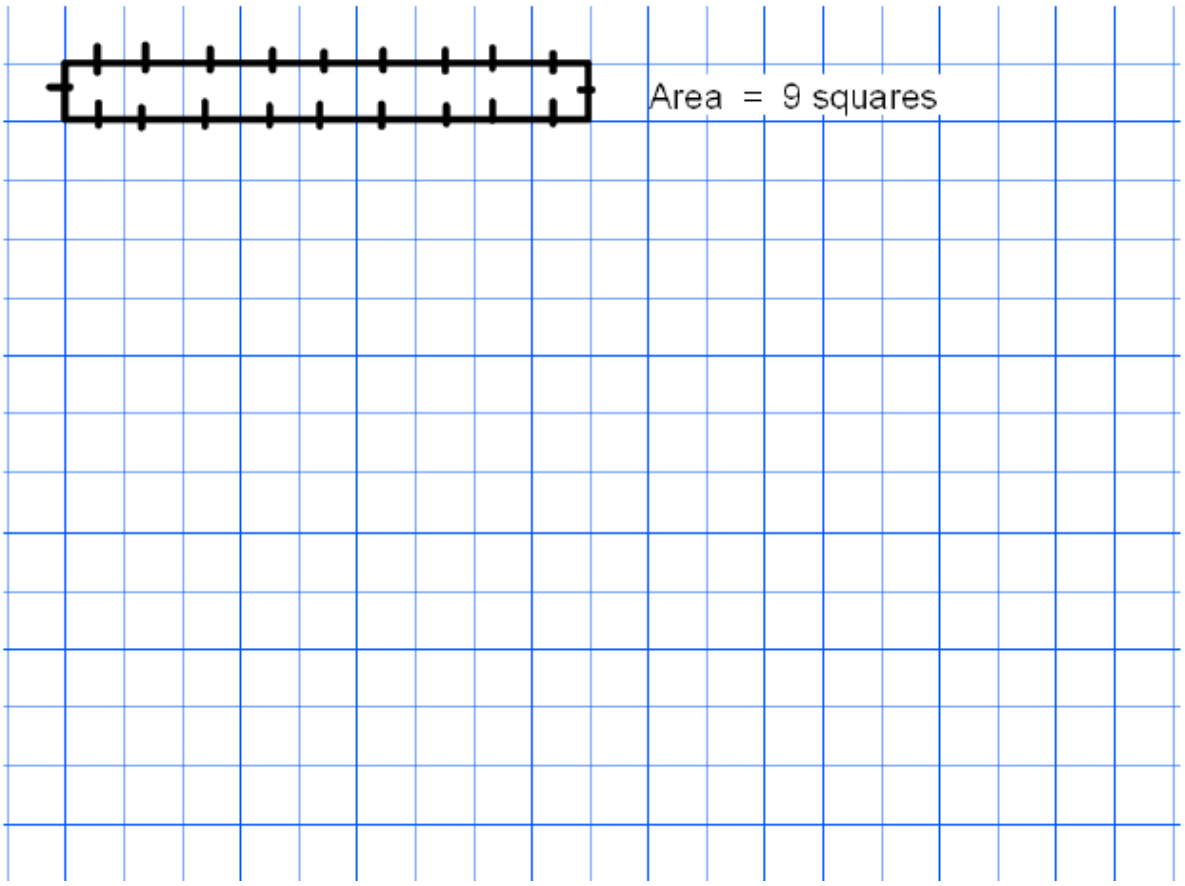
**Perimeter and Area of shapes.**

*This page should take you about ten minutes.*

Each square represents a square centimetre.

Draw as many different rectangles as you can on the grid below that have a perimeter of 20cm and work out their area.

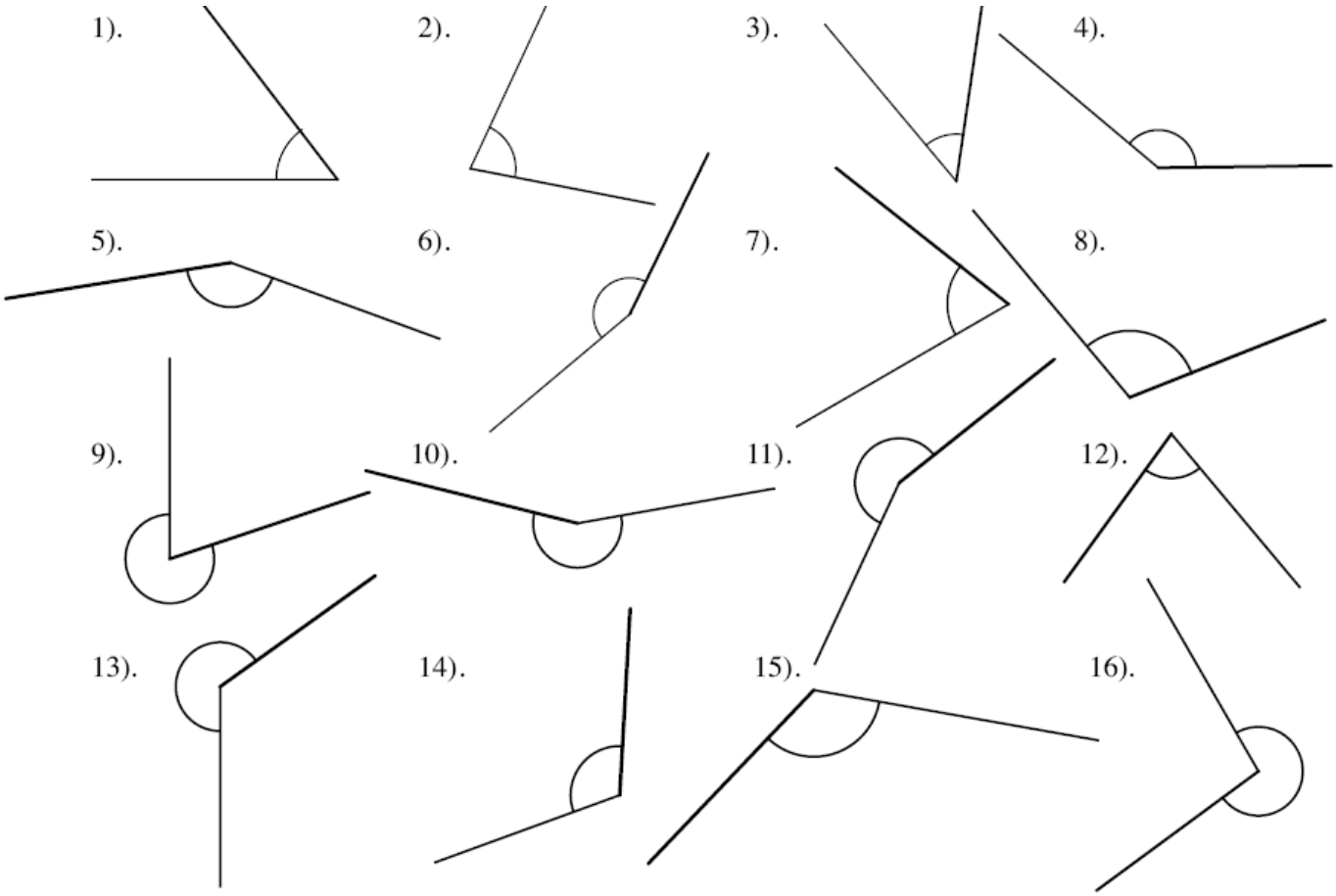
One has been done for you.



**Angles**

*This page should take you half an hour.*

1. State whether the angle is acute, obtuse or reflex.
2. Measure accurately each angle.

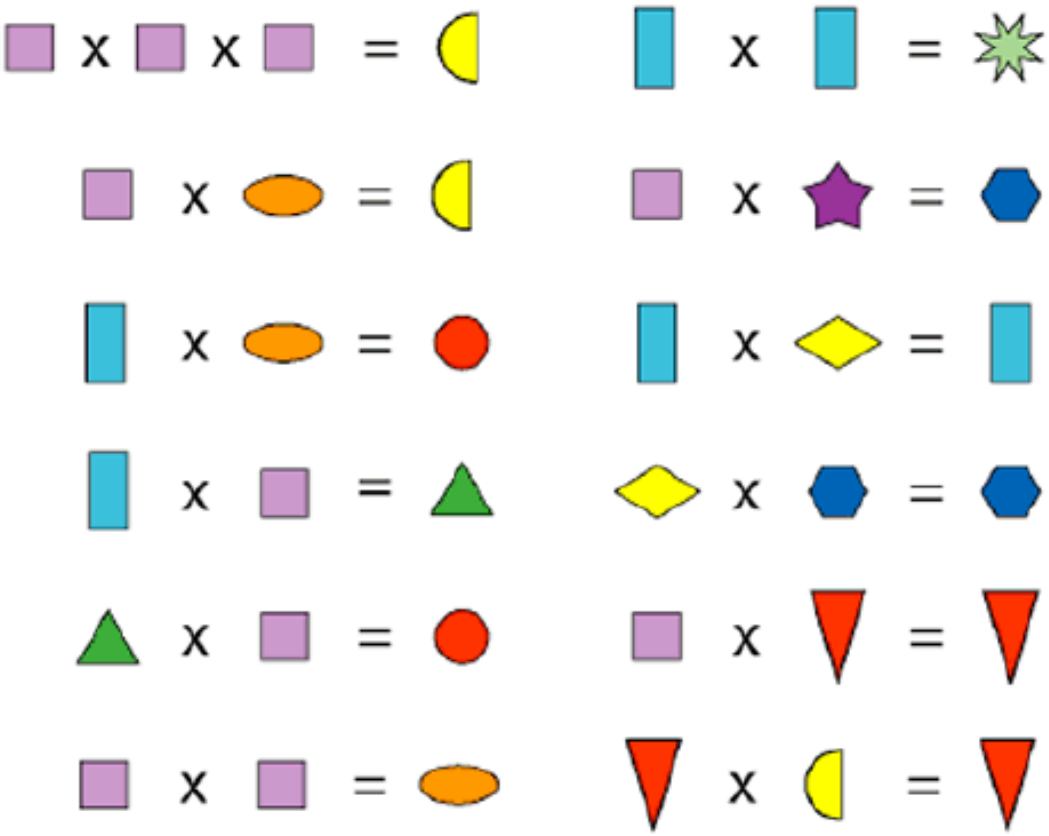



| | Type of angle | Measurement | | Type of angle | Measurement |
|---|---|---|---|---|---|
| 1 | | | 9 | | |
| 2 | | | 10 | | |
| 3 | | | 11 | | |
| 4 | | | 12 | | |
| 5 | | | 13 | | |
| 6 | | | 14 | | |
| 7 | | | 15 | | |
| 8 | | | 16 | | |

*This page might take you longer than half an hour, because we would like you to explain your thinking*

Work out the multiplications.

Each shape is a different number from 0 to 12.



**Reasoning**

Please explain which symbol you found first, second, third etc.

Which symbol could you not have found first?

***Envelopes***

*This page should take you about half an hour*

A set of ten cards, each showing one of the digits from 0 to 9, is divided up between five envelopes so that there are two cards in each envelope. The sum of the two numbers inside it, is written on each envelope:

What numbers could be inside the "8" envelope?

Explain your reasoning.

**Could you?**

***These activities focus on:***

→ *Deciding on what calculation to do to answer a numerical question*
→ *Practicing estimation*
→ *Looking up facts and accessing information*
→ *Working with units in context*
→ *Communicating mathematically*

Consider the following questions. *Select at most two of them*. When answering them you should make sensible **estimates** and then **calculate** efficiently. **Do not just guess!** The important part of this activity is **how** you simplify the required calculation to reach your answer. Remember to **show your workings** as you may be asked later to justify your answers.

*Each question should take you about half an hour.*

1. Could you stand the population of the Earth on the Isle of Wight?
2. Could you drink enough in a lifetime to empty a swimming pool?
3. Could you fit a million grains of rice into an empty litre container?
4. Could you carry one kilometre of toilet paper without any help?
5. Could you wrap up a 150mm × 1000mm × 100mm box using a single A4 sheet of paper?
6. Could you drive in town at 10 metres per second?
7. Could you build a garage using no more than 1000 bricks?
8. Could you find a cat that weighs more than five thousand paper clips?
9. Could you eat your body weight in dairy milk chocolate in one year?
10. Could you buy your height in dairy milk bars (side by side) with £10?

# Thank you for completing this booklet.

Now that you have finished please can you tell us what you thought of the booklet.

Students comments :

Parents comments :

Students – What was the topic of maths that you have found the most challenging in year 6?