

Student Name: _____	Grade: _____
Date: _____	Score: _____

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4 Year 7 Term 3 Week 4 Homework

4.1 Angles

4.1.1 Points, lines and intervals

Exercise 4.1.1

1. Draw an interval XY and mark on it the point Z somewhere between X and Y . Name the interval that is equal in length to:

(a) $XZ + YZ$ _____

(b) $XY - XZ$ _____

(c) $XY - YZ$ _____

2. Draw an interval LN of length 8 cm and mark the point M , such that lies M halfway between L and N . M is called the midpoint of LN . How far is:

(a) M from L ? _____

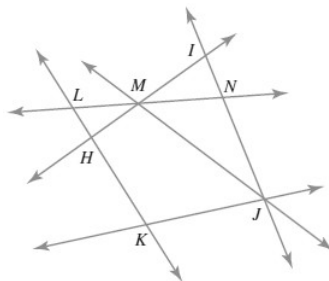
(b) M from N ? _____

(c) does $LM + MN = LN$? _____

3. If the same points lies on two different lines, what can you conclude about the lines?

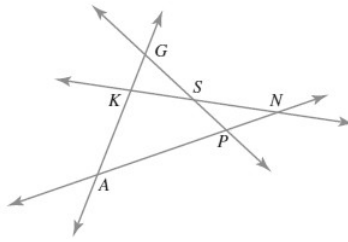
4. If 2 lines drawn in the same plane have no point of intersection, what can you conclude about the lines?

5. Three or more lines are said to be concurrent if they all intersect at the same point. name two sets of 3 concurrent lines on the diagram.



Exercise 4.1.2

1. Three or more points that lie on the same lines are said to be collinear.



- (a) Are the points, A, K and G collinear? _____
- (b) Are the points A, S and N collinear? _____
- (c) Name the point which is collinear with both G and S. _____
- (d) Name the point which is collinear with both A and N. _____
2. Draw any triangle ABC.
- (a) Measure the lengths of the sides and mark X, Y and Z, the midpoints of AB, BC and CA respectively.

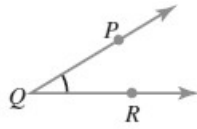
- (b) Using a ruler, join each vertex of the triangle to the midpoint of the opposite side. The intervals AY, BZ and CX are called medians.
- (c) Are the medians concurrent? _____

3. Sketch a diagram that shows all of the given information for each of these:

- (a) The intervals EF and GH bisect each other at D and $EF > GH$.
- (b) The interval UV is trisected at C and D by the lines BC and BD.

4.1.2 Naming angles

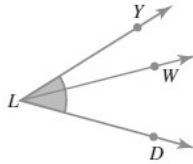
There are several ways in which an angle can be named:



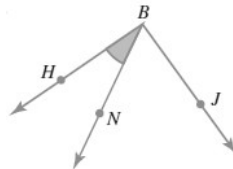
- $\angle PQR$ or $\angle RPQ$ or
- $P\hat{Q}R$ or $R\hat{Q}P$
- $\angle Q$

Exercise 4.1.3 Name the shaded angle in each of these:

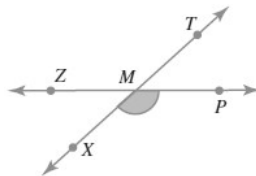
1. _____



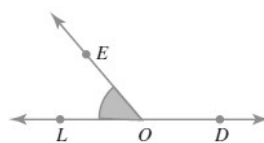
2. _____



3. _____



4. _____

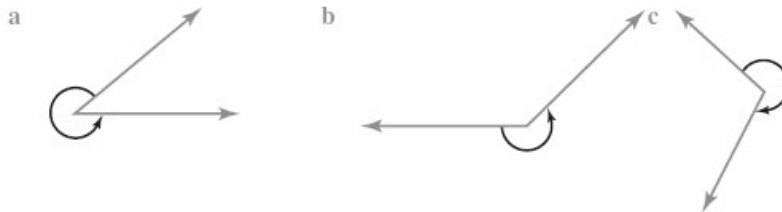


4.1.3 Measuring and drawing angles**Exercise 4.1.4**

1. Bisect each of these angles using only a ruler and protractor.



2. Find the size of the reflex angle in each of the following:



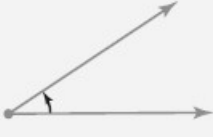
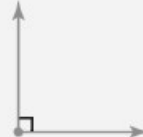




3. Use your protractor to draw an angle of:

(a) 210°

(b) 75°

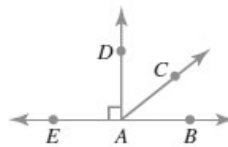
(c) 305°

4.1.4 Classification of angles

<p>Acute angle</p>  <p>Between 0° and 90°</p>	<p>Right angle</p>  <p>Equal to 90°</p>	<p>Obtuse angle</p>  <p>Between 90° and 180°</p>
<p>Straight angle</p>  <p>Equal to 180°</p>	<p>Reflex angle</p>  <p>Between 180° and 360°</p>	<p>Revolution</p>  <p>Equal to 360°</p>

Exercise 4.1.5

1. What kind of angle is:



- (a) $\angle EAC$? _____
- (b) $\angle CAD$? _____
- (c) $\angle EAB$? _____
- (d) $\angle BAC$? _____
- (e) $\angle EAD$? _____

2. What kind of angle(s) could be formed by adding:

- (a) two acute angles? _____
- (b) two obtuse angles? _____
- (c) an acute angle and an obtuse angle? _____
- (d) a straight angle and an obtuse angle? _____

3. What kind of angle(s) could be formed by subtracting:

- (a) a right angle from a obtuse angle? _____
- (b) an acute angle from an obtuse angle? _____
- (c) a right angle from a reflex angle? _____
- (d) a reflex angle from a revolution? _____

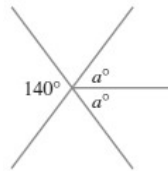
4.1.5 Pairs of angles

- Adjacent angles (have a common vertex and common ray)
- Complementary angles ($\angle A + \angle B = 90^\circ$)
- Supplementary angles ($\angle A + \angle B = 180^\circ$)
- Vertically opposite angles (They are equal)

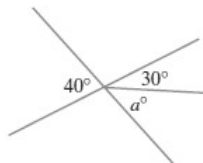
Exercise 4.1.6

1. Find the value of pronumeral in each of these:

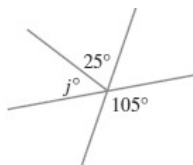
(a) _____



(b) _____



(c) _____



2. Find a pair of complementary angles such that one angle is:

(a) twice the size of the other other. _____

(b) one-quarter the size of the other. _____

3. Find a pair of supplementary angles such that one angle is:

(a) five times as large as the other other. _____

(b) half the size of the other. _____

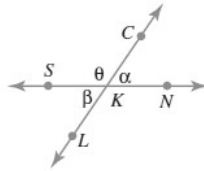
4.1.6 Miscellaneous questions on angles

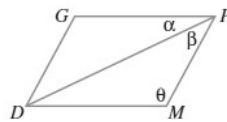
Exercise 4.1.7

1. Sketch a diagram that given by the following information:

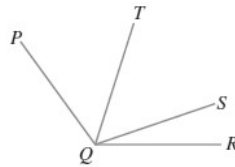
The interval AB is produced to C and BA is produced to D . P is a point not on DC , such that $PD=PC$ and $PA = PB$.

2. Name the angles marked α , β and θ in each of these:





3. In the diagram, $\angle PQT = 30^\circ$, $\angle PQS = 75^\circ$ and $\angle PQR = 125^\circ$. Find the size of $\angle TQR$ and $\angle SQR$.



4.2 Maths challenge

Exercise 4.2.1

- Four of the following are equal. Which is the odd one out?
(A) $\frac{1}{3} + \frac{5}{7}$ (B) 0.6 (C) $\frac{15}{25}$ (D) 60% (E) $\frac{1}{2} + \frac{1}{10}$
- Four of the points with these coordinates lie on a single straight line. Which is the odd one out?
(A) (6, 11) (B) (5, 5) (C) (4, 7) (D) (8, 15) (E) (2, 3)
- Nine bus stops are equally spaced along a bus route. The distance from the first to the third is 600 m. How far is it from the first to the last?
(A) 1200 m (B) 1600 m (C) 2400 m (D) 2700 m (E) 3000 m
- A quiz has twenty questions with seven points awarded for each correct answer, two points deducted for each incorrect answer and zero for each question omitted. Jeffrey scores 87 points. How many questions did he omit?
(A) 2 (B) 5 (C) 7 (D) 9 (E) 13
- A school has 657 pupils. There are 384 pupils in Year 9 or above and 376 in Year 9 and below. How many pupils are there in Year 9 in this school?
(A) 8 (B) 103 (C) 113 (D) 273 (E) 281
- The fraction $\frac{16}{64}$ is unusual since the digit 6, which occurs on both the top and the bottom, can be 'cancelled' to give $\frac{1}{4}$ which is the simplest of form of $\frac{16}{64}$. Which of these fractions has a similar property?
(A) $\frac{12}{24}$ (B) $\frac{13}{39}$ (C) $\frac{15}{45}$ (D) $\frac{19}{95}$ (E) $\frac{24}{48}$
- At which of these times are the two hands of a clock closet to being on top of each other?
(A) 6:30 (B) 6:31 (C) 6:32 (D) 6:33 (E) 6:34
- A three digit number is formed by the digits 0, 1, 2, 3, and 5. How many different three digit numbers can be formed if repetition is not allowed?

- A three digit number is formed by the digits 0, 1, 2, 3, 4 and 5. How many different three digit numbers can be formed if repetition is allowed?
