Year 8 Mathematics Homework Pack 2

BIS ABU DHABI

Name:
Teacher:

Pack Guidance

Dear Parents,

This pack is designed to provide all the resources necessary for your child's homework this term. The pack is structured to allow both yourselves and your son/daughter to plan their home study and contains resources that will help them either consolidate key mathematical concepts for year 8 or access some challenging enrichment activities.

Homework will consist of two tasks completed in alternative weeks:

1. Online tasks set on www.MyiMaths.com. These will be set by the class teacher and will relate to the topics studied this term.
2. Complete two retention worksheets. These sheets consist of the key questions year 8s should be able to answer and will appear on the end of term test. Answers are included, and we would expect pupils to complete and check. Class teachers will review the worksheets on the submission day to deal with any issues.

These tasks will form the basic level of homework that all pupils should complete. However, we appreciate that some pupils may finish work quicker or may need more challenging materials so have provided extra resources in three appendices:

A. **Appendix A** - consists of further retention sheets for those wanting extra practice. These questions will appear in the year 8 exams, so they can also be used for revision.
B. **Appendix B** - consists of enrichment tasks. The content of these tasks is much the same, but they require a far higher degree of problem solving and logical thinking. They are excellent preparation for taking part in future maths competitions.
C. **Appendix C** - Revision sheets for the Mid-Year Exam.

Once a pupil has completed their work for the week they should ask for the pack to be signed. This tells us that you are happy with the effort and time spent working during the week. We will check pupils work and the signatures in their last maths lesson of the week. A Wednesday on week 1 and a Thursday in week 2.

We hope you find the pack useful and thank you in advance for all your support this term.

Kind regards,

Alan Grant

Head of Mathematics

Parent Sign Sheet

Week Beginning	Suggested Activity	Signature
16th February	MyiMaths Tasks	
23rd February	Worksheet T1.1 and T1.2	
1st March	MyiMaths Tasks	
8th March	Worksheet T1.3 and T1.4	
15th March	MyiMaths Tasks	
22nd March	Worksheet T1.5 and T2.1	
12th April	MyiMaths Tasks	
19th April	Worksheet T1.6 and T2.2	
26th April	MyiMaths Tasks	
3rd May	Worksheet T1.7, T2.3 & T3.1	
10th May	MyiMaths Tasks	
17th May	Worksheet T1.8, T2.4 & T3.2	
7th June	Online Tasks	
14th June	Online Tasks	
21st June	Online Tasks	
28th June	Online Tasks	

Year 8 Term 1 Retention Sheet 1

1. Calculate leaving your answer as an improper fraction in its simplest form.

(a) $1\frac{3}{7}+2\frac{3}{10}=$ (b) $1\frac{1}{3}-2\frac{3}{11}=$

(c) $2\frac{3}{10}\times 1\frac{7}{9}=$ (d) $2\frac{1}{12}\div 2\frac{3}{8}=$

2. Use the formula $s=ut+\frac{1}{2}at^2$ to find s. Round your answer to the nearest whole number.

(a) $u=8, a=-1$ & $t=4$, (b) $u=-9.6, a=-4.5$ & $t=7$

3. Expand and Simplify:

(a) $2(7x+3)=$ (b) $4-7(4x+2)=$

(c) $-9(2x+9)+4(x-6)=$ (d) $5x(5x+2)+3(3x+8)=$

4. Draw a sketch of a **trapezium** and show all its properties using symbols where appropriate.

5. (a) Write the ratio 49:42 in its simplest form.

(b) Bill and Ben are selling their gardening equipment for $\$45$. They divide the money on the ration $4:1$. How much do each of them get?

(c) Gill is making mi$x$ed fruit juice. She makes it by mixing orange juice, apple juice and pineapple juice in the ratio $3:4:3$ respectively. If she uses $48\ ml$ of orange juice, how much apple and pineapple juice does she need?

6. Calculate the mean in each of the frequency tables below. Give your answer to 3 significant figures:

x	Frequency
1	0
2	3
3	5
4	7
5	6

x	Frequency
1	1
2	5
3	5
4	8
5	1

7. Solve:

(a) $8x-7=41$ (b) $-5x+18=-2x-2$

(c) $5(5x+7)=-2x-7$ (d) $5(-4x+6)=4(-x+7)$

Year 8 Term 1 Retention Sheet 2

1. Calculate leaving your answer as an improper fraction in its simplest form.

$(a)\quad 2\frac{7}{8}+1\frac{2}{5}=$ $(b)\quad 1\frac{10}{11}-3\frac{4}{9}=$

$(c)\quad 1\frac{10}{11}\times 3\frac{1}{2}=$ $(d)\quad 2\frac{3}{4}\div 3\frac{3}{5}=$

2. Use the formula $s=ut+\frac{1}{2}at^2$ to find s. Round your answer to the nearest whole number.

$(a)\quad u=\text{-}\,3, a=\ 5\ \&\ t=9,$ $(b)\quad u=\ 7.2, a=\text{-}\,7.7\ \&\ t=2$

3. Expand and Simplify:

$(a)\quad 7(6x+3)=$ $(b)\quad 5-1(5x-6)=$

$(c)\quad 4(5x+8)-9(4x-5)=$ $(d)\quad -7x(2x+6)-2(2x-5)=$

4. Draw a sketch of a **trapezium** and show all its properties using symbols where appropriate.

5. (a) Write the ratio 27:36 in its simplest form.

(b) Bill and Ben are selling their gardening equipment for $\$144$. They divide the money on the ration $7:2$. How much do each of them get?

(c) Gill is making mi$x$ed fruit juice. She makes it by mixing orange juice, apple juice and pineapple juice in the ratio $3:2:2$ respectively. If she uses $48\ ml$ of orange juice, how much apple and pineapple juice does she need?

6. Calculate the mean in each of the frequency tables below. Give your answer to 3 significant figures:

x	Frequency
1	1
2	4
3	5
4	8
5	1

x	Frequency
1	0
2	4
3	5
4	8
5	3

7. Solve:

$(a)\quad 7x+6=-8$ $(b)\quad 8x-15=-2x-14$

$(c)\quad -3(-3x+7)=-2x+4$ $(d)\quad -5(-3x-6)=-5(-5x+2)$

Year 8 Term 1 Retention Sheet 3

1. Calculate leaving your answer as an improper fraction in its simplest form.

$(a)\quad 2\frac{3}{4}+3\frac{9}{11}=$ $(b)\quad 2\frac{6}{7}-3\frac{1}{3}=$

$(c)\quad 3\frac{3}{11}\times 3\frac{5}{6}=$ $(d)\quad 2\frac{1}{2}\div 2\frac{3}{4}=$

2. Use the formula $s=ut+\frac{1}{2}at^2$ to find s. Round your answer to the nearest whole number.

$(a)\quad u=\text{-}\,7, a=\text{-}\,2\ \&\ t=4,$ $(b)\quad u=\ 0.0, a=\ 8.3\ \&\ t=8$

3. Expand and Simplify:

$(a)\quad -5(5x+8)=$ $(b)\quad -2+7(5x-8)=$

$(c)\quad -3(5x+6)+5(5x-9)=$ $(d)\quad -4x(5x+8)-1(5x-7)=$

4. Draw a sketch of a **kite** and show all its properties using symbols where appropriate.

5. (a) Write the ratio 10:80 in its simplest form.

(b) Bill and Ben are selling their gardening equipment for $\$143$. They divide the money on the ration $2:9$. How much do each of them get?

(c) Gill is making mi$x$ed fruit juice. She makes it by mixing orange juice, apple juice and pineapple juice in the ratio $7:9:3$ respectively. If she uses $49\ ml$ of orange juice, how much apple and pineapple juice does she need?

6. Calculate the mean in each of the frequency tables below. Give your answer to 3 significant figures:

x	Frequency
1	1
2	5
3	4
4	7
5	3

x	Frequency
1	0
2	5
3	4
4	7
5	4

7. Solve:

$(a)\quad -7x+2=58$ $(b)\quad 2x+20=-3x-12$

$(c)\quad 4(-x+8)=-3x+5$ $(d)\quad -3(-5x+7)=2(3x+2)$

Year 8 Term 1 Retention Sheet 4

1. Calculate leaving your answer as an improper fraction in its simplest form.

$(a)\quad 2\frac{1}{4}+1\frac{7}{12}=$ $(b)\quad 1\frac{5}{8}-3\frac{1}{11}=$

$(c)\quad 1\frac{1}{4}\times 1\frac{2}{5}=$ $(d)\quad 3\frac{1}{4}\div 2\frac{5}{6}=$

2. Use the formula $s=ut+\frac{1}{2}at^2$ to find s. Round your answer to the nearest whole number.

$(a)\quad u=\text{-}\,7, a=\ 3\ \&\ t=2,$ $(b)\quad u=\ 7.4, a=\ 6.5\ \&\ t=6$

3. Expand and Simplify:

$(a)\quad 2(2x+7)=$ $(b)\quad 9-1(7x-4)=$

$(c)\quad 4(x-2)+9(2x-3)=$ $(d)\quad -6x(5x-9)-9(x+8)=$

4. Draw a sketch of a **rhombus** and show all its properties using symbols where appropriate.

5. (a) Write the ratio 42:12 in its simplest form.

(b) Bill and Ben are selling their gardening equipment for $\$143$. They divide the money on the ration $8:3$. How much do each of them get?

(c) Gill is making mi$x$ed fruit juice. She makes it by mixing orange juice, apple juice and pineapple juice in the ratio $4:2:9$ respectively. If she uses $24\ ml$ of orange juice, how much apple and pineapple juice does she need?

6. Calculate the mean in each of the frequency tables below. Give your answer to 3 significant figures:

x	Frequency
1	1
2	5
3	4
4	8
5	1

x	Frequency
1	1
2	3
3	4
4	8
5	4

7. Solve:

$(a)\quad -9x-5=-14$ $(b)\quad -7x-6=4x+9$

$(c)\quad -5(-2x-4)=3x-4$ $(d)\quad -2(-3x+1)=2(-5x+9)$

Year 8 Term 1 Retention Sheet 5

1. Calculate leaving your answer as an improper fraction in its simplest form.

$(a)\quad 1\frac{3}{11}+1\frac{3}{5}=$ $(b)\quad 1\frac{1}{10}-1\frac{2}{9}=$

$(c)\quad 1\frac{2}{3}\times 1\frac{5}{12}=$ $(d)\quad 1\frac{7}{11}\div 3\frac{3}{5}=$

2. Use the formula $s=ut+\frac{1}{2}at^2$ to find s. Round your answer to the nearest whole number.

$(a)\quad u=5, a=0 \;\&\; t=9,$ $(b)\quad u=\text{-}2.1, a=6.4 \;\&\; t=7$

3. Expand and Simplify:

$(a)\quad -9(8x-3)=$ $(b)\quad -5+2(9x+4)=$

$(c)\quad 8(3x-3)-8(5x-3)=$ $(d)\quad -6x(3x-3)-6(4x+7)=$

4. Draw a sketch of a **rhombus** and show all its properties using symbols where appropriate.

5. (a) Write the ratio 45:40 in its simplest form.

(b) Bill and Ben are selling their gardening equipment for $\$184$. They divide the money on the ration $3:5$. How much do each of them get?

(c) Gill is making mi$x$ed fruit juice. She makes it by mixing orange juice, apple juice and pineapple juice in the ratio $7:8:7$ respectively. If she uses $126\ ml$ of orange juice, how much apple and pineapple juice does she need?

6. Calculate the mean in each of the frequency tables below. Give your answer to 3 significant figures:

x	Frequency
1	0
2	3
3	4
4	8
5	3

x	Frequency
1	1
2	4
3	4
4	8
5	3

7. Solve:

$(a)\quad -5x-4=16$ $(b)\quad 3x+18=-x-5$

$(c)\quad -3(-4x-2)=-2x+1$ $(d)\quad 3(4x+3)=-2(-5x+7)$

Year 8 Term 2 Retention Sheet 1

1. Simplify leaving your answer in index form.

(a) $8^2 \times 8^7 =$ (b) $9^6 \div 9^3 =$ (c) $\dfrac{2^4 \times 2^4}{2^4} =$

2. Simplify leaving your answer in index form.

(a) $2^6 \times 4 =$ (b) $(4x^2)^3 =$ (c) $7x^{-2}y^{-3} \times 12x^6y^2 =$

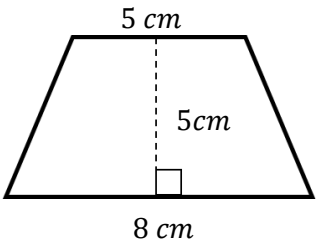
3. (a) Bob is going on holiday to the UAE and is taking $\$1200$ to spend. If the exchange rate is $\$1 = 3.63\ AED$, how much does he have to spend in dirhams?

(b) After his holiday Bob has 3267 AED left. How much is this in dollars?

4. (a) Find the HCF of 78 and 24. (b) Find the LCM of 7 and 14.

5. Find the area of the trapezium and parallelogram.

(a)



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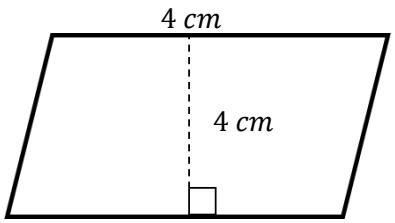
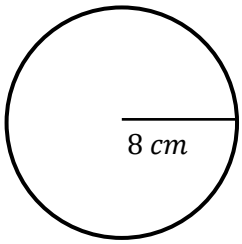


6. Find the perimeter and area of the circle and the semi−circle.
Take $\pi = 3.14$ and leave your answer to 2 decimal places.

(a)



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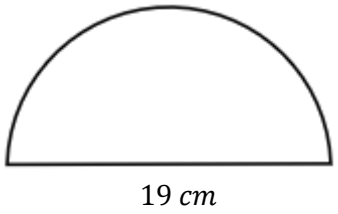
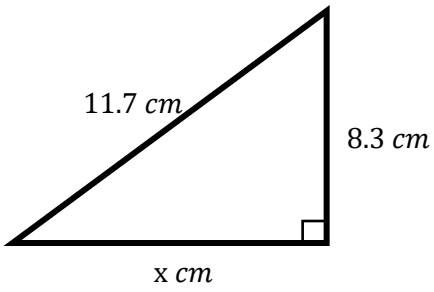
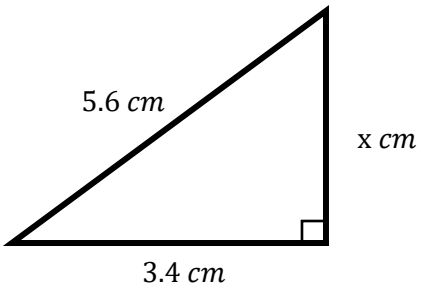


7. Find the missing side in each triangle, give your answers to one decimal place.

(a)



(b)



8. On a plain piece of paper, using a ruler and a compass, construct:

(a) An angle of $47°$ and its bisector.

(b) A length of $10\ cm$ and its perpendicular bisector.

(c) A triangle with sides $10\ cm$, $8\ cm$ & $11\ cm$.

(d) A rhombus with side $6\ cm$ and diagonal $7\ cm$

Year 8 Term 1 Retention Sheet 6

1. Calculate leaving your answer as an improper fraction in its simplest form.

$(a)\quad 2\frac{7}{12}+1\frac{4}{11}=$ $(b)\quad 1\frac{9}{10}-1\frac{3}{5}=$

$(c)\quad 1\frac{8}{9}\times 2\frac{7}{11}=$ $(d)\quad 2\frac{5}{11}\div 3\frac{7}{12}=$

2. Use the formula $s=ut+\frac{1}{2}at^2$ to find s. Round your answer to the nearest whole number.

$(a)\quad u=8, a=4 \;\&\; t=10,$ $(b)\quad u=-5.4, a=9.3 \;\&\; t=5$

3. Expand and Simplify:

$(a)\quad -7(7x+4)=$ $(b)\quad 5+4(7x+2)=$

$(c)\quad -3(2x-3)-3(x-3)=$ $(d)\quad 8x(2x-8)+8(5x-6)=$

4. Draw a sketch of a **rhombus** and show all its properties using symbols where appropriate.

5. (a) Write the ratio 5:45 in its simplest form.

(b) Bill and Ben are selling their gardening equipment for $\$75$. They divide the money on the ration $3:2$. How much do each of them get?

(c) Gill is making mi$x$ed fruit juice. She makes it by mixing orange juice, apple juice and pineapple juice in the ratio $3:6:5$ respectively. If she uses $69\ ml$ of orange juice, how much apple and pineapple juice does she need?

6. Calculate the mean in each of the frequency tables below. Give your answer to 3 significant figures:

x	Frequency
1	0
2	5
3	4
4	7
5	4

x	Frequency
1	0
2	4
3	4
4	7
5	5

7. Solve:

$(a)\quad -6x-8=-50$ $(b)\quad -4x-19=5x+4$

$(c)\quad 3(2x-6)=5x+9$ $(d)\quad -(2x+3)=-4(5x-6)$

Year 8 Term 2 Retention Sheet 2

1. Simplify leaving your answer in index form.

(a) $9^6 \times 9^6 =$ (b) $2^3 \div 2^7 =$ (c) $\dfrac{2^6 \times 2^3}{2^2} =$

2. Simplify leaving your answer in index form.

(a) $2^4 \times 8 =$ (b) $(3x^4)^4 =$ (c) $7x^{-4}y^5 \times 7x^{-2}y^{-2} =$

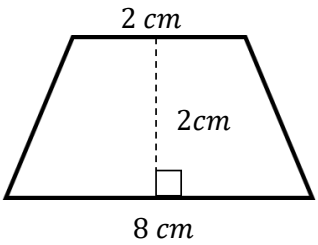
3. (a) Bob is going on holiday to the UAE and is taking $\$1100$ to spend. If the exchange rate is $\$1 = 3.59\ AED$, how much does he have to spend in dirhams?

(b) After his holiday Bob has 3231 AED left. How much is this in dollars?

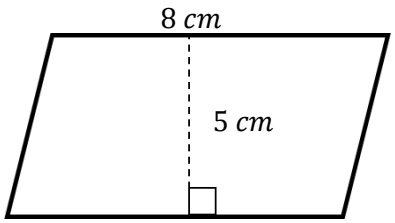
4. (a) Find the HCF of 78 and 24. (b) Find the LCM of 5 and 20.

5. Find the area of the trapezium and parallelogram.

(a)

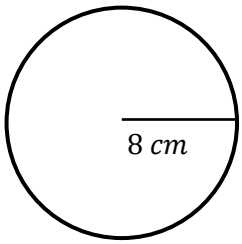


(b)



6. Find the perimeter and area of the circle and the semi−circle.
Take $\pi = 3.14$ and leave your answer to 2 decimal places.

(a)



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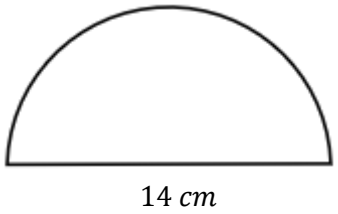
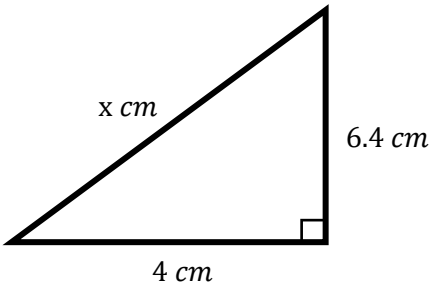
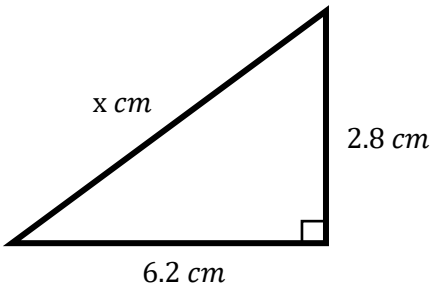


7. Find the missing side in each triangle, give your answers to one decimal place.

(a)



(b)



8. On a plain piece of paper, using a ruler and a compass, construct:

(a) An angle of 75° and its bisector. (b) A length of 8 cm and its perpendicular bisector.

(c) A triangle with sides 11 cm, 9 cm & 7 cm. (d) A rhombus with side 8 cm and diagonal 9 cm

Year 8 Term 1 Retention Sheet 7

1. Calculate leaving your answer as an improper fraction in its simplest form.

(a) $1\frac{7}{9}+3\frac{5}{11}=$ (b) $2\frac{1}{6}-2\frac{4}{5}=$

(c) $2\frac{8}{9}\times 3\frac{4}{5}=$ (d) $1\frac{3}{4}\div 2\frac{10}{11}=$

2. Use the formula $s=ut+\frac{1}{2}at^2$ to find s. Round your answer to the nearest whole number.

(a) $u=$ - 6, $a=$ - 5 & $t=9$, (b) $u=$ 3.2, $a=$ 6.3 & $t=7$

3. Expand and Simplify:

(a) $9(4x-1)=$ (b) $-1-8(8x+4)=$

(c) $5(5x-3)+8(2x-5)=$ (d) $9x(5x+2)+2(3x-6)=$

4. Draw a sketch of a **parallelogram** and show all its properties using symbols where appropriate.

5. (a) Write the ratio 10:16 in its simplest form.

(b) Bill and Ben are selling their gardening equipment for $\$91$. They divide the money on the ration $3:4$. How much do each of them get?

(c) Gill is making mi$x$ed fruit juice. She makes it by mixing orange juice, apple juice and pineapple juice in the ratio $8:7:7$ respectively. If she uses $88\ ml$ of orange juice, how much apple and pineapple juice does she need?

6. Calculate the mean in each of the frequency tables below. Give your answer to 3 significant figures:

x	Frequency
1	0
2	5
3	6
4	8
5	3

x	Frequency
1	1
2	4
3	6
4	7
5	2

7. Solve:

(a) $-6x-3=39$ (b) $-x-8=5x+4$

(c) $4(3x-8)=5x+6$ (d) $-2(-3x+4)=-(3x+3)$

Year 8 Term 2 Retention Sheet 3

1. Simplify leaving your answer in index form.

(a) $2^5 \times 2^3 =$ (b) $8^7 \div 8^5 =$ (c) $\dfrac{8^4 \times 8^2}{8^6} =$

2. Simplify leaving your answer in index form.

(a) $2^4 \times 32 =$ (b) $(2x^5)^3 =$ (c) $4x^2y^{-2} \times 2x^5y^6 =$

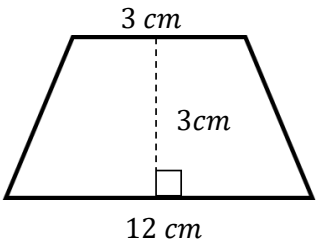
3. (a) Bob is going on holiday to the UAE and is taking $\$1200$ to spend. If the exchange rate is $\$1 = 3.65\ AED$, how much does he have to spend in dirhams?

(b) After his holiday Bob has 3650 AED left. How much is this in dollars?

4. (a) Find the HCF of 66 and 60. (b) Find the LCM of 24 and 16.

5. Find the area of the trapezium and parallelogram.

(a)



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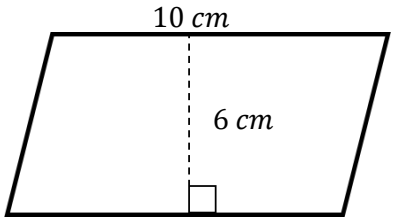
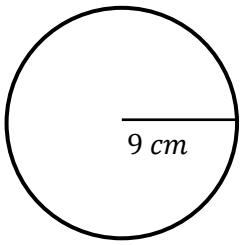
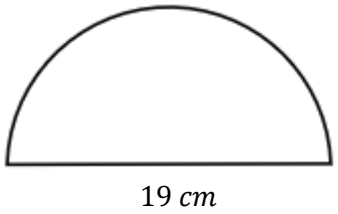


6. Find the perimeter and area of the circle and the semi−circle.
Take $\pi = 3.14$ and leave your answer to 2 decimal places.

(a)

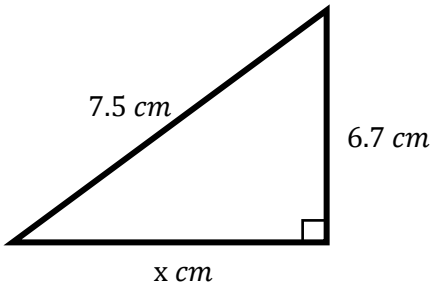


(b)

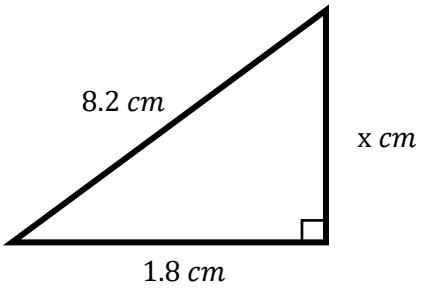


7. Find the missing side in each triangle, give your answers to one decimal place.

(a)



(b)



8. On a plain piece of paper, using a ruler and a compass, construct:

(a) An angle of $41°$ and its bisector.

(b) A length of $6\ cm$ and its perpendicular bisector.

(c) A triangle with sides $11\ cm$, $12\ cm$ & $5\ cm$.

(d) A rhombus with side $8\ cm$ and diagonal $12\ cm$

Year 8 Term 3 Retention Sheet 1

1. Simplify leaving your answer in index form.

(a) $4^4 \times 4^3 =$ (b) $5^4 \div 5^6 =$ (c) $\dfrac{7^7 \times 7^3}{7^6} =$

2. Simplify leaving your answer in index form.

(a) $2^3 \times 8 =$ (b) $(4x^4)^3 =$ (c) $9x^{-4}y^2 \times 5x^{-1}y^4 =$

3. (a) Bob is going on holiday to the UAE and is taking $\$900$ to spend. If the exchange rate is $\$1 = 3.73\ AED$, how much does he have to spend in dirhams?

(b) After his holiday Bob has 2238 AED left. How much is this in dollars?

4. Vicky has 20 marbles in a bag. 5 marbles are red, 6 are green, 2 are blue and 7 are yellow. If Vicky selects a marble at random what is the probability it is:

(a) yellow;

(b) yellow or red;

(c) not red.

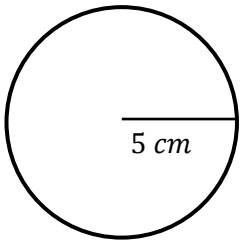
5. Louise rolls a dice and flips a coin.

(a) Draw a sample space diagram to show the possible outcomes.

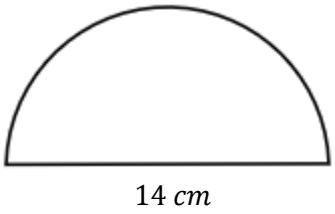
(b) What is the probability of her getting a 5 and heads?

6. Find the perimeter and area of the circle and the semi−circle.
Take $\pi = 3.14$ and leave your answer to 2 decimal places.

(a)

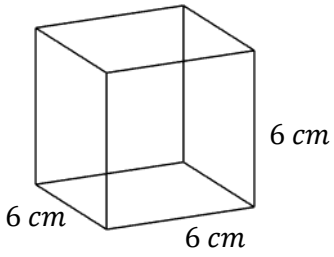


(b)

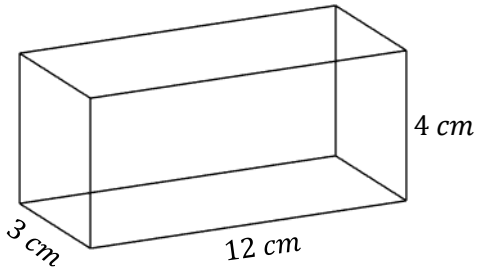


7. Find the volume and surface area of each shape.
Take $\pi = 3.14$ and leave your answer to 2 decimal places where appropriate.

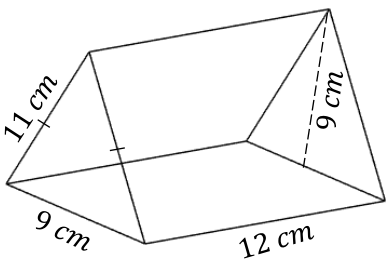
(a)



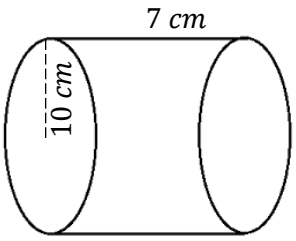
(b)



(b)



(c)



Year 8 Term 1 Retention Sheet 8

1. Calculate leaving your answer as an improper fraction in its simplest form.

(a) $1\frac{2}{3}+1\frac{5}{6}=$ (b) $3\frac{5}{8}-3\frac{1}{10}=$

(c) $1\frac{7}{8}\times 3\frac{2}{7}=$ (d) $3\frac{2}{3}\div 2\frac{8}{11}=$

2. Use the formula $s=ut+\frac{1}{2}at^2$ to find s. Round your answer to the nearest whole number.

(a) $u=9, a=5$ & $t=2,$ (b) $u=$ - $5.1, a=$ - 1.6 & $t=5$

3. Expand and Simplify:

(a) $-4(3x+5)=$ (b) $-3+7(2x+9)=$

(c) $-4(5x+6)+8(3x-8)=$ (d) $-8x(5x+5)+9(2x-5)=$

4. Draw a sketch of a **rhombus** and show all its properties using symbols where appropriate.

5. (a) Write the ratio 24:20 in its simplest form.

(b) Bill and Ben are selling their gardening equipment for $\$231$. They divide the money on the ration $3:8$. How much do each of them get?

(c) Gill is making mi$x$ed fruit juice. She makes it by mixing orange juice, apple juice and pineapple juice in the ratio $1:2:7$ respectively. If she uses $24\ ml$ of orange juice, how much apple and pineapple juice does she need?

6. Calculate the mean in each of the frequency tables below. Give your answer to 3 significant figures:

x	Frequency
1	1
2	4
3	6
4	7
5	2

x	Frequency
1	1
2	4
3	6
4	7
5	2

7. Solve:

(a) $6x+8=2$ (b) $-5x-19=2x-8$

(c) $5(-5x+4)=-4x-4$ (d) $3(-5x+6)=2(-x-7)$

Year 8 Term 2 Retention Sheet 4

1. Simplify leaving your answer in index form.

(a) $9^7 \times 9^6 =$ (b) $4^7 \div 4^6 =$ (c) $\dfrac{9^2 \times 9^5}{9^7} =$

2. Simplify leaving your answer in index form.

(a) $2^3 \times 16 =$ (b) $(2x^4)^4 =$ (c) $5x^3y^5 \times 4x^{-4}y^3 =$

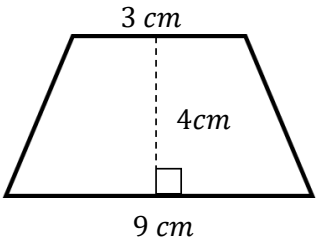
3. (a) Bob is going on holiday to the UAE and is taking $\$900$ to spend. If the exchange rate is $\$1 = 3.70\ AED$, how much does he have to spend in dirhams?

(b) After his holiday Bob has 2590 AED left. How much is this in dollars?

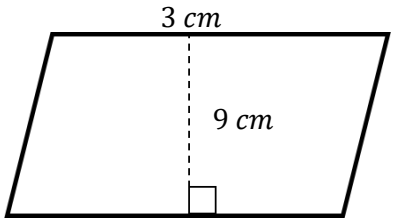
4. (a) Find the HCF of 80 and 24. (b) Find the LCM of 8 and 20.

5. Find the area of the trapezium and parallelogram.

(a)

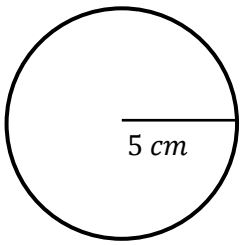


(b)

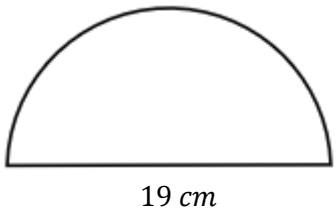


6. Find the perimeter and area of the circle and the semi−circle.
Take $\pi = 3.14$ and leave your answer to 2 decimal places.

(a)

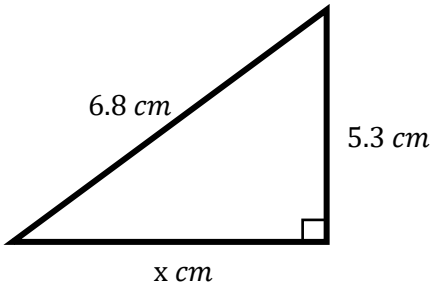


(b)

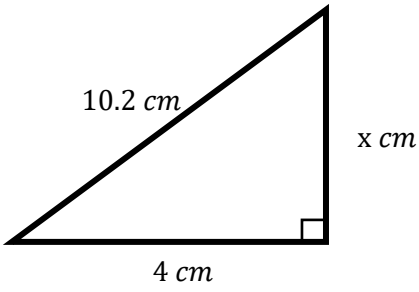


7. Find the missing side in each triangle, give your answers to one decimal place.

(a)



(b)



8. On a plain piece of paper, using a ruler and a compass, construct:

(a) An angle of $74°$ and its bisector. (b) A length of $9\ cm$ and its perpendicular bisector.

(c) A triangle with sides $7\ cm$, $9\ cm$ & $11\ cm$. (d) A rhombus with side $5\ cm$ and diagonal $6\ cm$

Year 8 Term 3 Retention Sheet 2

1. Simplify leaving your answer in index form.

(a) $9^7 \times 9^4 =$ (b) $3^4 \div 3^5 =$ (c) $\dfrac{5^6 \times 5^6}{5^4} =$

2. Simplify leaving your answer in index form.

(a) $2^4 \times 4 =$ (b) $(2x^3)^4 =$ (c) $10x^4y^3 \times 2x^4y^5 =$

3. (a) Bob is going on holiday to the UAE and is taking $\$1100$ to spend. If the exchange rate is $\$1 = 3.74\ AED$, how much does he have to spend in dirhams?

(b) After his holiday Bob has 3366 AED left. How much is this in dollars?

4. Vicky has 20 marbles in a bag. 5 marbles are red, 2 are green, 5 are blue and 8 are yellow. If Vicky selects a marble at random what is the probability it is:

(a) green;

(b) yellow or red;

(c) not green.

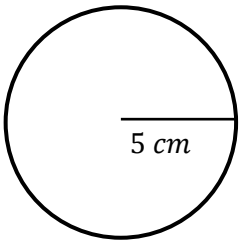
5. Louise rolls a dice and flips a coin.

(a) Draw a sample space diagram to show the possible outcomes.

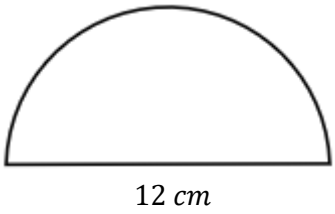
(b) What is the probability of her getting a 3 and tails?

6. Find the perimeter and area of the circle and the semi−circle.
Take $\pi = 3.14$ and leave your answer to 2 decimal places.

(a)

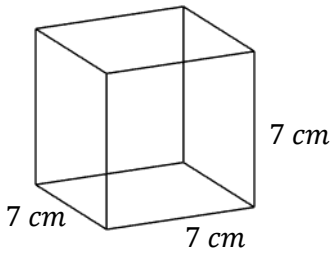


(b)

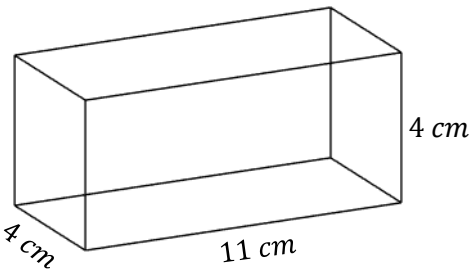


7. Find the volume and surface area of each shape.
Take $\pi = 3.14$ and leave your answer to 2 decimal places where appropriate.

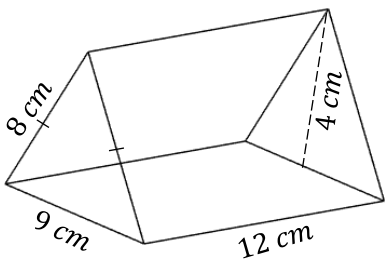
(a)



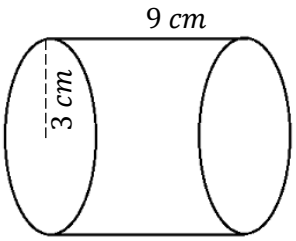
(b)



(b)



(c)



ANSWERS

Year 8 Term 1 Retention Sheet 1

1. (a) $\frac{261}{70}$ (b) $\frac{-31}{33}$

(c) $\frac{184}{45}$ (d) $\frac{50}{57}$

2. (a) $s = -16$ (b) $s = -67$

3. (a) $14x + 6$ (b) $-28x - 10$

(c) $-28x - 10$ (d) $25x^2 + 19x + 24$

4. (a) See quadrilaterals sheet

5. (a) $49:42$ (b) Bill gets \$36 and Ben gets \$9 (c) $64\ ml$ of apple and $48\ ml$ of pineapple

6. (a) 3.80 (b) 3.15

7. (a) $x = 6$ (b) $x = \frac{20}{3}$

(c) $x = -\frac{14}{9}$ (d) $x = \frac{1}{8}$

Year 8 Term 1 Retention Sheet 2

1. (a) $\frac{171}{40}$ (b) $\frac{-152}{99}$

(c) $\frac{147}{22}$ (d) $\frac{55}{72}$

2. (a) $s = 188$ (b) $s = -71$

3. (a) $42x + 21$ (b) $-5x + 11$

(c) $-5x + 11$ (d) $-14x^2 - 46x + 10$

4. (a) See quadrilaterals sheet

5. (a) $27:36$ (b) Bill gets \$112 and Ben gets \$32 (c) $32\ ml$ of apple and $32\ ml$ of pineapple

6. (a) 3.20 (b) 3.50

7. (a) $x = -2$ (b) $x = \frac{1}{10}$

(c) $x = \frac{25}{11}$ (d) $x = 4$

Year 8 Term 1 Retention Sheet 3

1. (a) $\frac{289}{44}$ (b) $\frac{-10}{21}$

(c) $\frac{138}{11}$ (d) $\frac{10}{11}$

2. (a) $s = -2$ (b) $s = 266$

3. (a) $-25x - 40$ (b) $35x - 58$

(c) $35x - 58$ (d) $-20x^2 - 37x + 7$

4. (a) See quadrilaterals sheet

5. (a) $10:80$ (b) Bill gets \$26 and Ben gets \$117 (c) $63\ ml$ of apple and $21\ ml$ of pineapple

6. (a) 3.30 (b) 3.50

7. (a) $x = -8$ (b) $x = -\frac{32}{5}$

(c) $x = 27$ (d) $x = \frac{25}{9}$

Year 8 Term 1 Retention Sheet 4

1. (a) $\frac{23}{6}$ (b) $\frac{-129}{88}$

(c) $\frac{7}{4}$ (d) $\frac{39}{34}$

2. (a) $s = -15$ (b) $s = 165$

3. (a) $4x + 14$ (b) $-7x + 13$

(c) $-7x + 13$ (d) $-30x^2 + 45x - 72$

4. (a) See quadrilaterals sheet

5. (a) $42:12$ (b) Bill gets \$104 and Ben gets \$39 (c) $12\ ml$ of apple and $54\ ml$ of pineapple

6. (a) 3.15 (b) 3.55

7. (a) $x = 1$ (b) $x = -\frac{15}{11}$

(c) $x = -\frac{24}{7}$ (d) $x = \frac{5}{4}$

Year 8 Term 1 Retention Sheet 5

1. (a) $\frac{158}{55}$ (b) $\frac{-11}{90}$

(c) $\frac{85}{36}$ (d) $\frac{5}{11}$

2. (a) $s = 0$ (b) $s = 143$

3. (a) $-72x + 27$ (b) $18x + 3$

(c) $18x + 3$ (d) $-18x^2 - 6x - 42$

4. (a) See quadrilaterals sheet

5. (a) $45:40$ (b) Bill gets \$69 and Ben gets \$115 (c) $144\ ml$ of apple and $126\ ml$ of pineapple

6. (a) 3.55 (b) 3.40

7. (a) $x = -4$ (b) $x = -\frac{23}{4}$

(c) $x = -\frac{5}{14}$ (d) $x = -\frac{23}{2}$

Year 8 Term 2 Retention Sheet 1 Answers

1. (a) 8^9 (b) 9^3 (c) 2^4

2. (a) 2^8 (b) $64x^6$ (c) $84x^4y^{-1}$

3. (a) 6 (b) 14

4. (a) $4356\ AED$ (b) \$900

5. (a) $32.5\ cm^2$ (b) $16\ cm^2$

6. (a) $C = 50.24\ cm,$ $A = 200.96\ cm^2$ (b) $P = 48.83\ cm,$ $A = 141.69\ cm^2$

7. (a) $8.2\ cm$ (b) $4.4\ cm$

8. Ask your parents to check your accuracy, all lengths must be within $2mm$ and angles 2°. If there is anything you are unsure about please see your maths teacher.

Year 8 Term 1 Retention Sheet 6

1. (a) $\frac{521}{132}$ (b) $\frac{3}{10}$

(c) $\frac{493}{99}$ (d) $\frac{324}{473}$

2. (a) $s = 232$ (b) $s = 66$

3. (a) $-49x - 28$ (b) $28x + 13$

(c) $28x + 13$ (d) $16x^2 - 24x - 48$

4. (a) See quadrilaterals sheet

5. (a) $5:45$ (b) Bill gets \$45 and Ben gets \$30 (c) $138\ ml$ of apple and $115\ ml$ of pineapple

6. (a) 3.50 (b) 3.65

7. (a) $x = 7$ (b) $x = -\frac{23}{9}$

(c) $x = 27$ (d) $x = \frac{3}{2}$

Year 8 Term 2 Retention Sheet 2 Answers

1. (a) 9^{12} (b) 2^{-4} (c) 2^7

2. (a) 2^7 (b) $81x^{16}$ (c) $49x^{-6}y^3$

3. (a) 6 (b) 20

4. (a) $3949\ AED$ (b) \$900

5. (a) $10\ cm^2$ (b) $40\ cm^2$

6. (a) $C = 50.24\ cm,\quad A = 200.96\ cm^2$ (b) $P = 35.98\ cm,\quad A = 76.93\ cm^2$

7. (a) $7.5\ cm$ (b) $6.8\ cm$

8. Ask your parents to check your accuracy, all lengths must be within $2mm$ and angles $2°$. If there is anything you are unsure about please see your maths teacher.

Year 8 Term 1 Retention Sheet 7

1. (a) $\frac{518}{99}$ (b) $\frac{-19}{30}$

(c) $\frac{494}{45}$ (d) $\frac{77}{128}$

2. (a) $s = $ -173 (b) $s = 175$

3. (a) $36x - 9$ (b) $-64x - 33$

(c) $-64x - 33$ (d) $45x^2 + 24x - 12$

4. (a) See quadrilaterals sheet

5. (a) $10:16$ (b) Bill gets \$39 and Ben gets \$52 (c) $77\ ml$ of apple and $77\ ml$ of pineapple

6. (a) 3.45 (b) 3.25

7. (a) $x = -7$ (b) $x = -2$

(c) $x = \frac{38}{7}$ (d) $x = \frac{5}{9}$

Year 8 Term 2 Retention Sheet 3 Answers

1. (a) 2^8 (b) 8^2 (c) 8^0

2. (a) 2^9 (b) $8x^{15}$ (c) $8x^7y^4$

3. (a) 6 (b) 48

4. (a) $4380\ AED$ (b) $\$1000$

5. (a) $22.5\ cm^2$ (b) $60\ cm^2$

6. (a) $C = 56.52\ cm,$ $A = 254.34\ cm^2$ (b) $P = 48.83\ cm,$ $A = 141.69\ cm^2$

7. (a) $3.3\ cm$ (b) $8.0\ cm$

8. Ask your parents to check your accuracy, all lengths must be within $2mm$ and angles 2°. If there is anything you are unsure about please see your maths teacher.

Year 8 Term 3 Retention Sheet 1 Answers

1. (a) 4^7 (b) 5^{-2} (c) 7^4

2. (a) 2^6 (b) $64x^{12}$ (c) $45\mathrm{x}^{-5}\mathrm{y}^6$

3. (a) $3357\ AED$ (b) $\$600$

4. (a) $\frac{7}{20}$ (b) $\frac{3}{5}$ (c) $\frac{3}{4}$

5. (a)

	1	2	3	4	5	6
H	$(H,1)$	$(H,2)$	$(H,3)$	$(H,4)$	$(H,5)$	$(H,6)$
T	$(T,1)$	$(T,2)$	$(T,3)$	$(T,4)$	$(T,5)$	$(T,6)$

(b) $\frac{1}{12}$

6. (a) $C = 31.40\ cm,$ $A = 78.50\ cm^2$ (b) $P = 35.98\ cm,$ $A = 76.93\ cm^2$

7. (a) $SA = 216\ cm^2,$ $V = 216\ cm^3$ (b) $SA = 192\ cm^2,$ $V = 144\ cm^3$

(c) $SA = 453\ cm^2,$ $V = 486\ cm^3$ (d) $SA = 1067.60\ cm^2,$ $V = 2198.00\ cm^3$

Year 8 Term 1 Retention Sheet 8

1. (a) $\frac{7}{2}$ (b) $\frac{21}{40}$

(c) $\frac{345}{56}$ (d) $\frac{121}{90}$

2. (a) $s = 55$ (b) $s = -12$

3. (a) $-12x - 20$ (b) $14x + 60$

(c) $14x + 60$ (d) $-40x^2 - 22x - 45$

4. (a) See quadrilaterals sheet

5. (a) $24:20$ (b) Bill gets \$63 and Ben gets \$168 (c) $48\ ml$ of apple and $168\ ml$ of pineapple

6. (a) 3.25 (b) 3.25

7. (a) $x = -1$ (b) $x = -\frac{11}{7}$

(c) $x = \frac{8}{7}$ (d) $x = \frac{32}{13}$

Year 8 Term 2 Retention Sheet 4 Answers

1. (a) 9^{13} (b) 4^1 (c) 9^0

2. (a) 2^7 (b) $16x^{16}$ (c) $20x^{-1}y^8$

3. (a) 8 (b) 40

4. (a) $3330\ AED$ (b) \$700

5. (a) $24\ cm^2$ (b) $27\ cm^2$

6. (a) $C = 31.40\ cm,\quad A = 78.50\ cm^2$ (b) $P = 48.83\ cm,\quad A = 141.69\ cm^2$

7. (a) $4.3\ cm$ (b) $9.4\ cm$

8. Ask your parents to check your accuracy, all lengths must be within $2mm$ and angles 2°. If there is anything you are unsure about please see your maths teacher.

Year 8 Term 3 Retention Sheet 2 Answers

1. (a) 9^{11} (b) 3^{-1} (c) 5^8

2. (a) 2^6 (b) $16x^{12}$ (c) $20x^8y^8$

3. (a) $4114\ AED$ (b) \$900

4. (a) $\frac{1}{10}$ (b) $\frac{13}{20}$ (c) $\frac{9}{10}$

5. (a)

	1	2	3	4	5	6
H	$(H,1)$	$(H,2)$	$(H,3)$	$(H,4)$	$(H,5)$	$(H,6)$
T	$(T,1)$	$(T,2)$	$(T,3)$	$(T,4)$	$(T,5)$	$(T,6)$

(b) $\frac{1}{12}$

6. (a) $C = 31.40\ cm,\quad A = 78.50\ cm^2$ (b) $P = 30.84\ cm,\quad A = 56.52\ cm^2$

7. (a) $SA = 294\ cm^2,\quad V = 343\ cm^3$ (b) $SA = 208\ cm^2,\quad V = 176\ cm^3$

(c) $SA = 336\ cm^2,\quad V = 216\ cm^3$ (d) $SA = 226.08\ cm^2,\quad V = 254.34\ cm^3$