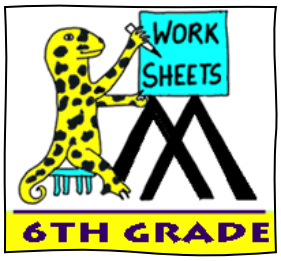
MATH SALAMANDERS

6TH GRADE MATH GRAB PACK

SUMMER EDITION

ANSWERS



- This is the **answer pack** for our 6th Grade Math Grab Pack Fall Edition.
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COMPARING ABSOLUTE VALUES 1 ANSWERS

Use the >, < or = symbols to compare these expressions involving absolute values.

1) |7| > |5|	2) |10| = |-10|	3) |14| > |-12|
4) |-24| > |-15|	5) |7| < |-10|	6) |-12| < |18|
7) |-1| < |-3|	8) |-4| = 4	9) |-2| < |-5|
10) |-12| > |7|	11) |-5| < |-10|	12) |14| < |-15|
13) |3.5| > |-2|	14) |-4| < |-5.5|	15) |-0.7| > |0.5|
16) |-0.3| < |-0.6|	17) |-14| = |14|	18) |-1.2| > |-0.8|
19) |-25| > |23|	20) 10 = |-10|	21) |10| > -10
22) |-4.9| > |2.7|	23) -5.2 < |-2.8|	24) 0.9 > |-0.5|
25) |-0.6| > |0.25|	26) |0.45| < |-0.7|	27) -3.6 < |-2.9|
28) |-2.5| = |2.5|	29) |1 ¼ | > | ¾ |	30) | -½ | < |-1 ¼|

CHALLENGE: Put these values in order, from smallest to largest.

|-9|	-1.4	|-3.6|	-4.5	3.2	|2.8|

-4.5	-1.4	|2.8|	3.2	|-3.6|	|-9|

Smallest Largest

USING EXPONENTS SHEET 6:1 ANSWERS

1) $3^2 = 3 \times 3 = 9$ 2) $2^3 = 2 \times 2 \times 2 = 8$ 3) $6^2 = 6 \times 6 = 36$

4) $9^2 = 9 \times 9 = 81$ 5) $3^3 = 3 \times 3 \times 3 = 27$ 6) $7^2 = 7 \times 7 = 49$

Use a calculator to work out these exponents below:

7) $4^3 = 4 \times 4 \times 4 = 64$ 8) $2^5 = 2 \times 2 \times 2 \times 2 \times 2 = 32$

9) $5^4 = 5 \times 5 \times 5 \times 5 = 625$ 10) $9^3 = 9 \times 9 \times 9 = 729$

11) $3^5 = 243$ 12) $7^4 = 2401$ 13) $10^5 = 100000$

14) $2^7 = 128$ 15) $9^5 = 59049$ 16) $16^3 = 4096$

17) $6^1 = 6$ 18) $5^6 = 15625$ 19) $78^2 = 6084$

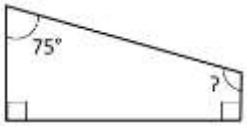
20) Work out these exponents, then put them in order, from smallest to largest.

5^6 2^9 6^4 9^3 10^4 7^5

$2^9 = 512$ $9^3 = 729$ $6^4 = 1296$ $10^4 = 10000$ $5^6 = 15625$ $7^5 = 16807$

Smallest Largest

MENTAL MATH QUIZ 6:5 ANSWERS

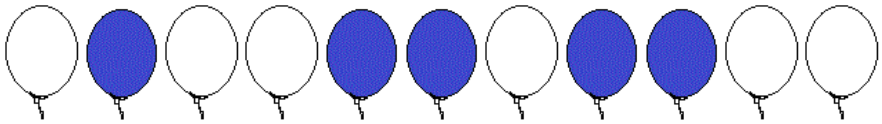
1)	30% of $180	**$54**
2)	Work out 6×10^5	**600,000**
3)	Work out the value of this expression: $(11 - 6 \div 2) \times 3$	**24**
4)	Write 8.27×10^3 in standard form.	**8270**
5)	If you multiply a number by another number, it gets bigger. Is this: *always true* *sometimes true* *never true*	**sometimes true** **3 x 4 bigger** **3 x ½ smaller**
6)	$3\ ^4/_5 + 1\ ^3/_4$	**$5\ ^{11}/_{20}$ or $^{111}/_{20}$**
7)	I put $4000 in a savings account paying 2% interest annually. How much money will I have at the end of the year?	**$4080**
8)	What is the missing number: _____ feet = $8\ ^1/_3$ yards	**25**
9)	A submarine is submerged at a depth of 120 m. It dives *p* meters further down. Write an expression to represent its height above sea level now.	**-120 – p** **or –(120 + p)**
10)	Which of these values is a solution for this inequality: $5 > 2t + 1$ a) t = 4 b) t = 0 c) t = 3 d) t = 2	**b) t=0**
11)	Tyger draws a rectangle ABCD on the coordinate grid. The coordinates of A = (-3, 5), B = (6, 5) and C = (6, 1). What are the coordinates of point D?	**D = (-3,1)**
12)	Find all 3 factor pairs of 45.	1 and 45 3 and 15 5 and 9
13)	Solve $4x = 240$.	$x = 60$
14)	Southampton Salamanders score 52 points in their first two football games. They score 6 more points in their first game than their second. How many points did they score in each game?	1st Game **29** 2nd Game **23**
15)	Work out $(8 - 5)^3$	**27**
16)	What is 2 lb 8 oz + 3 lb 10 oz	**6** lb **2** oz
17)	Sally watches ⅓ of a film. It takes 45 minutes. How long is the film?	**2** hr **15** min
18)	What is the missing angle? 	**105°**

COMPARING UNIT RATES & COSTS SHEET 6.1 ANSWERS

	Cost	Unit Rate/ Cost ($)		Cost	Unit Rate/ Cost ($)
1)			8)		
5 Tyger bars	$2.50	$0.50	5 person group pass	$22	$4.40
3 Tyger bars	$1.80	$0.60	8 person group pass	$30	$3.75
8 Tyger bars	$3.20	$0.40	12 person group pass	$48	$4
2)			9)		
12 packs of crackers	$4.20	$0.35	pack of 8 apples	$2.40	$0.30
8 packs of crackers	$2.48	$0.31	pack of 15 apples	$4.20	$0.28
3 packs of crackers	$1.20	$0.40	pack of 24 apples	$7	$0.29
3)			10)		
8 cans of coca cola	$6	$0.75	20-wash detergent box	$7	$0.35
12 cans of coca cola	$7.80	$0.65	50-wash detergent box	$20	$0.40
16 cans of coca cola	$9.60	$0.60	80-wash detergent box	$30	$0.38
4)			11)		
6 boxes of popcorn	$8	$1.33	12 packs of post-its	$5	$0.42
12 boxes of popcorn	$14	$1.17	30 packs of post-its	$12	$0.40
9 boxes of popcorn	$10	$1.11	50 packs of post-its	$17	$0.34
5)			12)		
12 cartons of juice	$15	$1.25	5 months of MathFlix	$19	$3.80
20 cartons of juice	$24	$1.20	9 months of MathFlix	$34	$3.78
4 cartons of juice	$6	$1.50	12 months of MathFlix	$46	$3.83
6)			13)		
pack of 10 pens	$14	$1.40	20 sheets of card	$3	$0.15
pack of 8 pens	$11	$1.38	50 sheets of card	$6	$0.12
pack of 3 pens	$4	$1.33	80 sheets of card	$10	$0.13
7)			14)		
24 cupcakes	$7.20	$0.30	24 month subscription	$80	$3.33
16 cupcakes	$6	$0.38	12 month subscription	$42	$3.50
6 cupcakes	$2.50	$0.42	15 month subscription	$57	$3.80

PART-TO-PART RATIO SHEET 2 ANSWERS

1)



Ratio of  to 

6 to 5

6 : 5

2)

Ratio of  to 

3 to 5

3 : 5

3)

Ratio of  to 

7 to 5

7 : 5

4)

Ratio of  to 

4 to 7

4 : 7

5)

31, 24, 17, 42, 18, 10, 12, 29, 13

Ratio of odd to even

4 to 5

4 : 5

6)

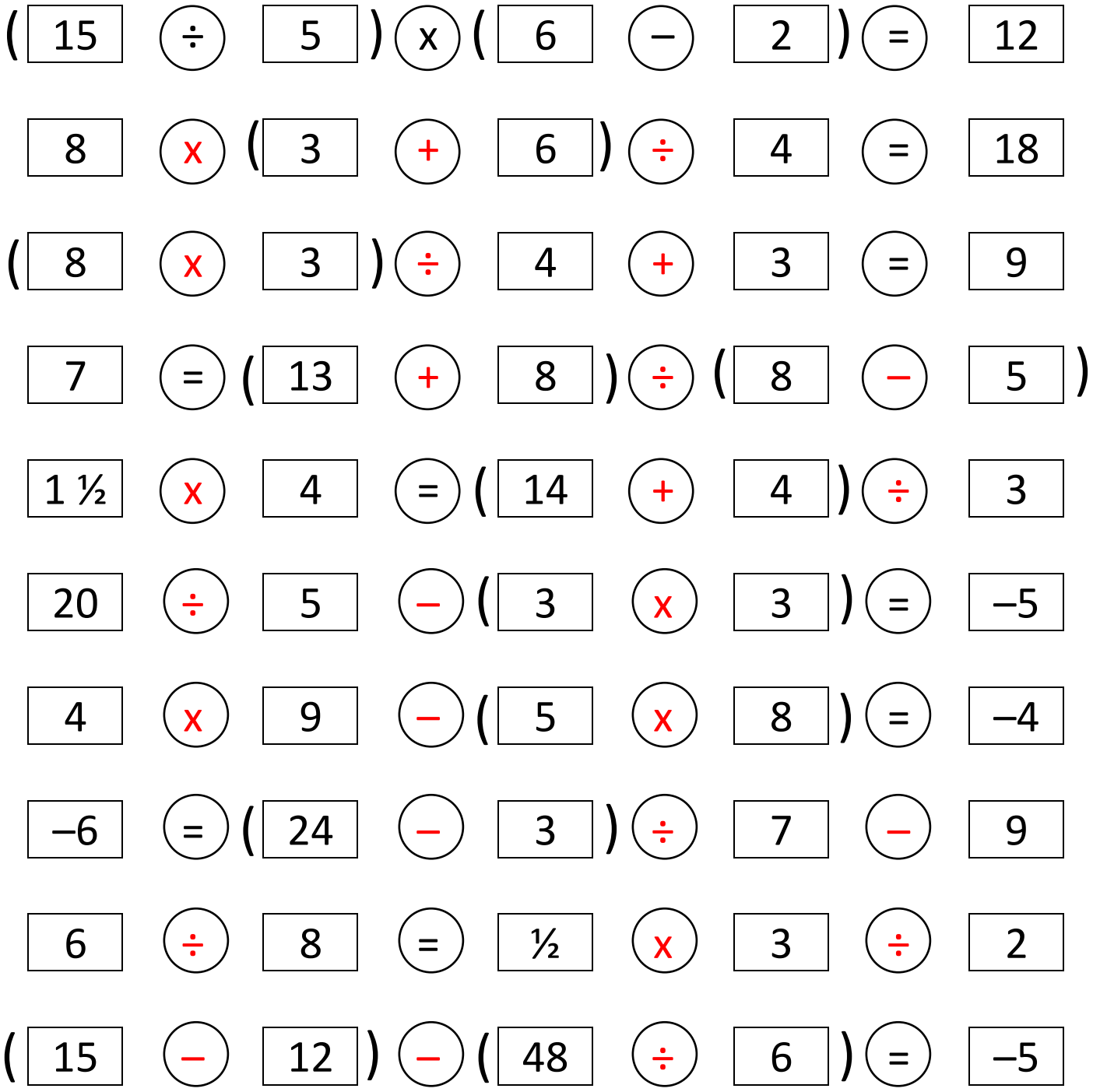
Ratio of 2d shapes to 3d shapes

7 to 4

7 : 4

QUADRA'S OPERATION PUZZLE 6A ANSWERS

For some calculations, more than one answer may be valid.



MULTIPLYING AND DIVIDING FRACTIONS 2 ANSWERS

1) $\frac{2}{9} \times \frac{1}{2} = \frac{2}{18} = \frac{1}{9}$

2) $\frac{3}{5} \div \frac{2}{3} = \frac{9}{10}$

3) $\frac{3}{8} \times \frac{5}{6} = \frac{15}{48} = \frac{5}{16}$

4) $\frac{3}{8} \div \frac{3}{7} = \frac{21}{24} = \frac{7}{8}$

5) $\frac{4}{7} \times \frac{3}{8} = \frac{12}{56} = \frac{3}{14}$

6) $\frac{7}{6} \div \frac{3}{4} = \frac{28}{18} = \frac{14}{9}$

7) $\frac{4}{3} \times \frac{3}{5} = \frac{4}{5}$

8) $\frac{5}{6} \div \frac{2}{3} = \frac{15}{12} = \frac{5}{4}$

9) $\frac{2}{7} \times \frac{7}{9} = \frac{2}{9}$

10) $\frac{5}{4} \div \frac{2}{3} = \frac{15}{8}$

11) $\frac{4}{3} \times \frac{2}{7} = \frac{8}{21}$

12) $\frac{7}{4} \div \frac{5}{8} = \frac{56}{20} = \frac{14}{5}$

13) $\frac{5}{6} \times \frac{4}{7} = \frac{20}{42} = \frac{10}{21}$

14) $\frac{2}{7} \div \frac{1}{3} = \frac{6}{7}$

15) $\frac{1}{9} \times \frac{3}{4} = \frac{3}{36} = \frac{1}{12}$

16) $\frac{4}{5} \div \frac{2}{5} = \frac{20}{10} = 2$

17) $\frac{3}{8} \times \frac{2}{5} = \frac{6}{40} = \frac{3}{20}$

18) $\frac{3}{4} \div \frac{1}{4} = \frac{12}{4} = 3$

19) $\frac{7}{2} \times \frac{4}{9} = \frac{28}{18} = \frac{14}{9}$

20) $\frac{2}{9} \div \frac{4}{5} = \frac{10}{36} = \frac{5}{18}$

21) $\frac{6}{5} \times \frac{3}{7} = \frac{18}{35}$

22) $\frac{5}{2} \div \frac{7}{8} = \frac{40}{14} = \frac{20}{7}$

23) $\frac{5}{7} \times \frac{6}{5} = \frac{6}{7}$

24) $\frac{8}{3} \div \frac{4}{7} = \frac{56}{12} = \frac{14}{3}$

EVALUATE THE EXPRESSION 6:2 ANSWERS

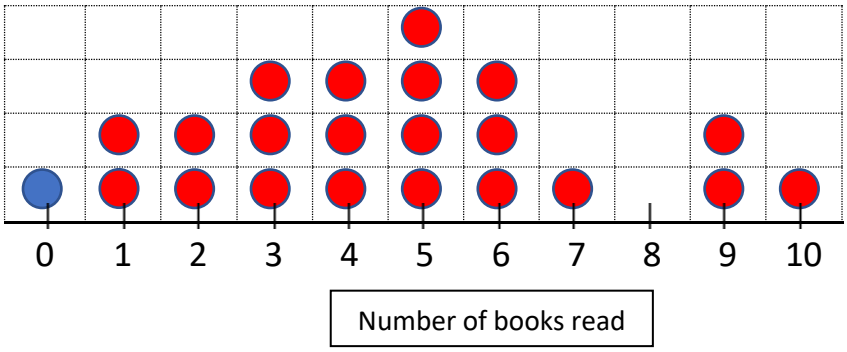
EXPRESSION	VALUE
1) $3(2 + 5)$	$3 \times 7 = 21$
2) $6(9 - 2)$	$6 \times 7 = 42$
3) $4(7 + 8)$	$4 \times 15 = 60$
4) $8(13 - 9)$	$8 \times 4 = 32$
5) $10(12 - 5)$	$10 \times 7 = 70$
6) $4(7 + 3 - 1)$	$4 \times 9 = 36$
7) $6(7 - 4 + 3)$	$6 \times 6 = 36$
8) $8(15 - 11 + 2)$	$8 \times 6 = 48$
9) $15(24 - 21)$	$15 \times 3 = 45$
10) $5(2^2 + 5)$	$5 \times 9 = 45$
11) $2(15 - 3^2)$	$2 \times 6 = 12$
12) $9(2 \times 6 - 5)$	$9 \times 7 = 63$
13) $4(3 + 4 \times 2)$	$4\ (3 + 8) = 4 \times 11 = 44$
14) $12(19 - 6 \times 3)$	$12\ (19 - 18) = 12 \times 1 = 12$
15) $6(15 \div 3 + 2)$	$6\ (5 + 2) = 6 \times 7 = 42$
16) $3(20 - 4 \times 5)$	$3\ (20 - 20) = 3 \times 0 = 0$
17) $8(5^2 - 21)$	$8\ (25 - 21) = 8 \times 4 = 32$
18) $\frac{1}{2}\ (12 - 2^3)$	$\frac{1}{2}\ (12 - 8) = \frac{1}{2} \times 4 = 2$
19) $3(6 \times 5 - 22)$	$3\ (30 - 22) = 3 \times 8 = 24$
20) $\frac{1}{2}\ (34 - 4 \times 7)$	$\frac{1}{2}\ (34 - 28) = \frac{1}{2} \times 6 = 3$

CREATING DOT PLOTS SHEET 6:2 ANSWERS

1) This data shows the number of books read in a month by a group of students.

Books read	3	5	1	4	9	7	5	3	6	10	0
	9	4	2	6	5	3	6	5	2	4	1

a) Use the data to complete the dot plot to show these results.



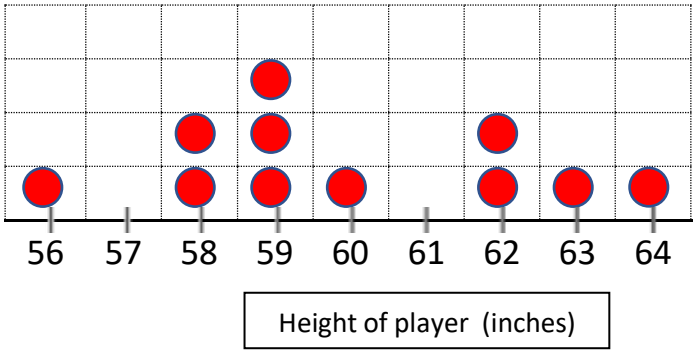
b) Complete the missing information in the table below:

Mode books read	Median books read	Range
5	4.5	10 books

2) This data shows the height of a group of children in the soccer team.

Height (inches)	59	62	59	60	58	59	62	58	64	56	63

a) Use the information to draw a box plot showing this data.



b) Complete the missing information in the table below:

Median height	Range of heights	Mean height
59 inches	8 inches	60 inches

ADD & SUBTRACT NEGATIVE NUMBERS SHEET 1 ANSWERS

1) $5 + (-3) = 2$

2) $5 - (-3) = 8$

3) $2 + (-4) = -2$

4) $2 - (-4) = 6$

5) $(-5) + 3 = -2$

6) $(-5) - 3 = -8$

7) $(-3) + 6 = 3$

8) $(-3) - 6 = -9$

9) $2 + (-5) = -3$

10) $2 - (-5) = 7$

11) $7 + (-1) = 6$

12) $7 - (-1) = 8$

13) $1 + (-6) = -5$

14) $1 - (-6) = 7$

15) $(-4) + (-5) = -9$

16) $(-4) - (-5) = 1$

17) $(-3) + (-7) = -10$

18) $(-3) - (-7) = 4$

19) $4 + (-6) = -2$

20) $4 - (-6) = 10$

21) $3 + (-4) = -1$

22) $(-4) - 5 = -9$

23) $(-6) + 5 = -1$

24) $2 - (-6) = 8$

25) $3 + (-5) = -2$

26) $5 - (-3) = 8$

27) $8 + (-7) = 1$

28) $(-3) - (-4) = 1$

29) $7 + (-10) = -3$

30) $(-1) - 7 = -8$

31) $(-6) + 11 = 5$

32) $(-8) - (-10) = 2$

33) $(-10) + 7 = -3$

34) $8 - 12 = -4$

35) $4 + (-11) = -7$

36) $(-6) - 3 = -9$

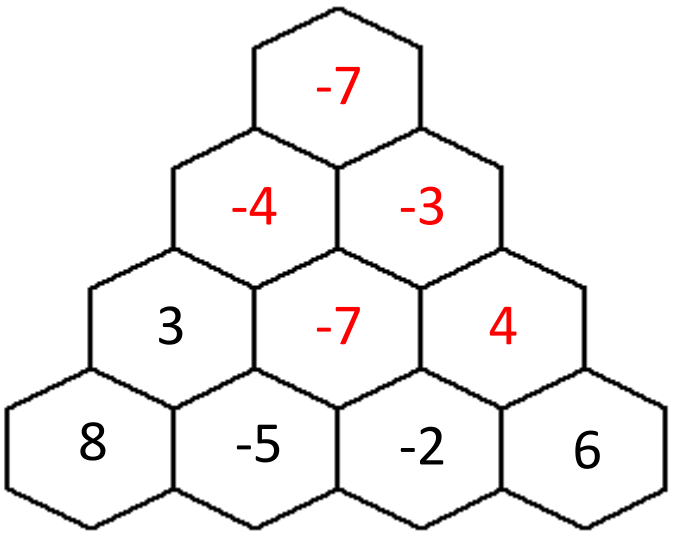
37) $(-5) + (-4) = -9$

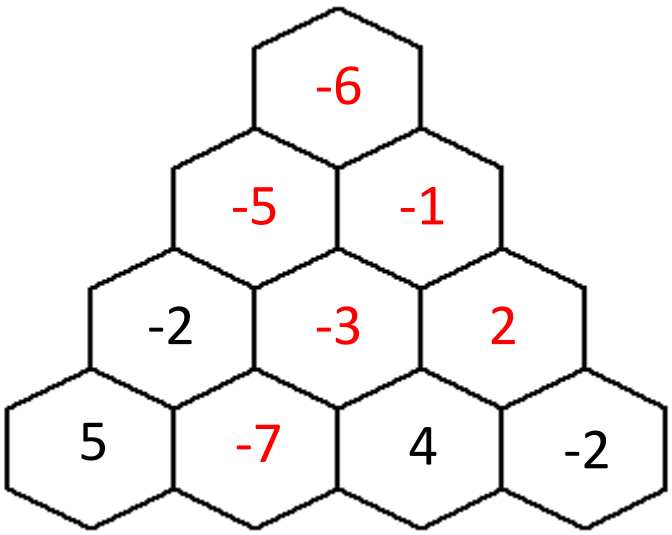
38) $(-2) - (-10) = 8$

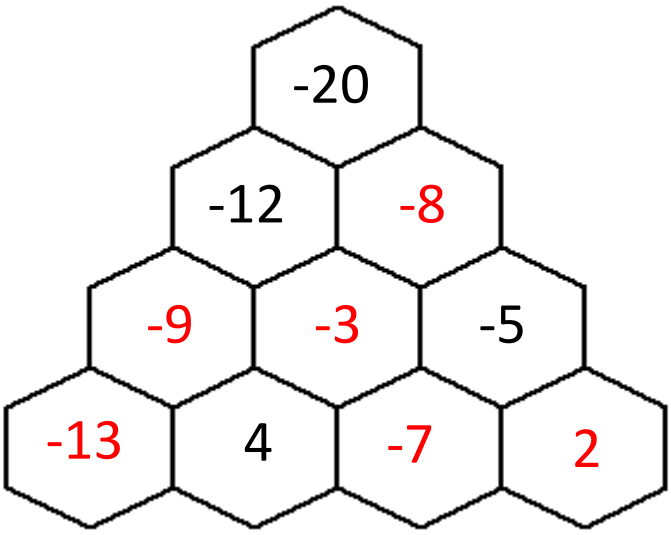
39) $(-8) + 15 = 7$

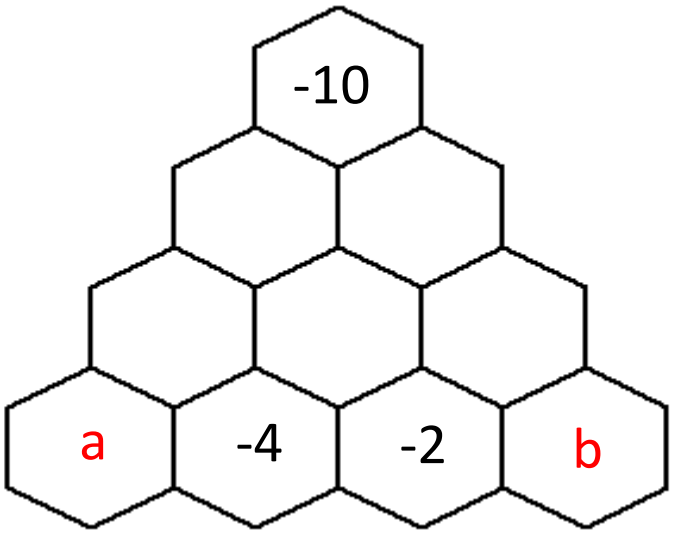
40) $(-7) - (-12) = 5$

SALLY'S HEXAGON NUMBER PUZZLE 6 ANSWERS







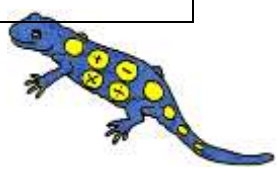


For the last example, any solution of the form a+b=8.

Examples

a=4, b=4	a=2, b=6	a=8, b=0	a=10, b=-2	a=2½ b=5½

There are an infinite number of solutions.



ALGEBRA WORD PROBLEMS SHEET 2 ANSWERS

1)	In a stable, there are **h** horses. 6 of them are taken out into the yard to exercise. How many are left in the stable?	=	h – 6
2)	There are **c** cyclists in a cycle race. ¾ of the cyclists finish the race. How many cyclists did not finish?	=	¼ c
3)	There are 56 people on a bus. **t** people get off at the next stop and 3 more people get on. How many people are on the bus now?	=	56 – t + 3 *or* 59 – t
4)	In a class of 30 children, **b** children come to school by bus. What fraction of the class come by bus?	=	b/30
5)	In a class of **c** children, 16 have blue eyes. What fraction of the class have blue eyes?	=	16/c
6)	There are **b** people on a bus. At the next stop, 7 people get off and 10 more get on. How many more people are on the bus now?	=	10 – 7 = 3 trick question
7)	I cut a long piece of wood into 50cm pieces. I manage to cut **w** pieces of wood, and there is 20cm left over. How long was the wood to start with?	=	(50w + 20) cm
8)	I have **c** chocolates which I share equally between by 5 friends. How many do they each get?	=	c/5
9)	I have 5 pens already. I am given 2 packs of pens. Each pack contains **t** pens. How many pens do I have now?	=	2t + 5
10)	There are **d** deer and **p** pheasants in the woods. How many legs in total?	=	4d + 2p

MEAN, MEDIAN, MODE AND RANGE SHEET 3 ANSWERS

1)	{31, 27, 19, 22, 21, 18, 19, 25, 29, 34, 30}		
order	{18, 19, 19, 21, 22, 25, 27, 29, 30, 31, 34}		
Mean 25	Median 25	Mode 19	Range 16
2)	{8, 14, 7, 15, 14, 11, 10, 9, 19, 11, 14}		
order	{7, 8, 9, 10, 11, 11, 14, 14, 14, 15, 19}		
Mean 12	Median 11	Mode 14	Range 12
3)	{106, 112, 98, 102, 112, 95, 106, 101, 98, 103, 117, 98}		
order	{95, 98, 98, 98, 101, 102, 103, 106, 106, 112, 112, 117}		
Mean 104	Median 102.5	Mode 98	Range 22
4)	{142, 353, 271, 396, 217, 92, 198, 271, 313, 502, 424}		
order	{92, 142, 198, 217, 271, 271, 313, 353, 396, 424, 502}		
Mean 289	Median 271	Mode 271	Range 410
5)	{96, 103, 106, 98, 95, 97, 101, 105, 103, 98, 101, 95, 101, 117, 99}		
order	{95, 95, 96, 97, 98, 98, 99, 101, 101, 101, 103, 103, 105, 106, 117}		
Mean 101	Median 101	Mode 101	Range 22
6)	{12, 22, 8, 4, 11, 9, 15, 9, 11, 10, 8, 12, 11, 18, 8, 10, 12, 8}		
order	{4, 8, 8, 8, 8, 9, 9, 10, 10, 11, 11, 11, 12, 12, 12, 15, 18, 22}		
Mean 11	Median 10.5	Mode 8	Range 18

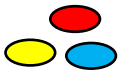
PERCENTAGE WORD PROBLEMS 6.1A ANSWERS

1) In a class of 30 children, 18 of the children have blue eyes.
What percentage of the class have blue eyes?

(18 ÷ 30) x 100 = 60

60% of the class have blue eyes.

2) In a packet of 40 skittles, 12 are red.
What percentage of the skittles are red?



(12 ÷ 40) x 100 = 30

30% of the skittles are red.

3) Tyger spends 25 minutes studying mathematics, 35 minutes studying science and 40 minutes studying history. What percentage of his time is spend studying science?

25 + 35 + 40 = 100 minutes

So he spends 35/100 = 35% of his time studying science.

4) Frazer scores 70% in a test. If there are a total of 40 marks, how many marks did he get?

70% = 0.7

0.7 x 40 = 28

He got 28 marks in the test.

5) Toronto FC have lost 5 of the 20 games they have played. What percentage of games have they not lost?

(5 ÷ 20) x 100 = 25%

100% – 25% = 75%.

They have not lost 75% of their games.

6) In a group of 32 children, 25% have blue eyes. How many children do not have blue eyes?

25% have blue eyes = ¼ .

¼ of 32 = 32 ÷ 4 = 8 children.

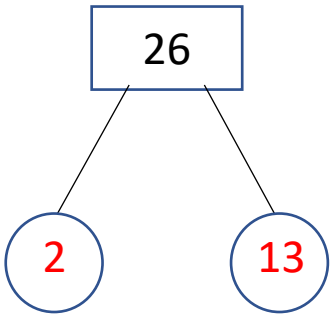
8 children have blue eyes.

So 32 – 8 = 24 children do not have blue eyes.

FACTOR TREES SHEET 2 ANSWERS

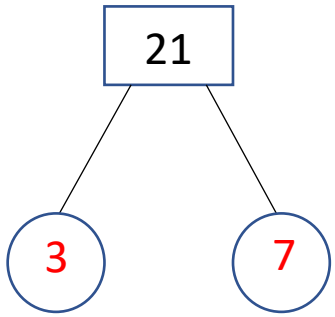
Please note – the factor trees can be completed in different ways, with the prime factors in a different order.

1)



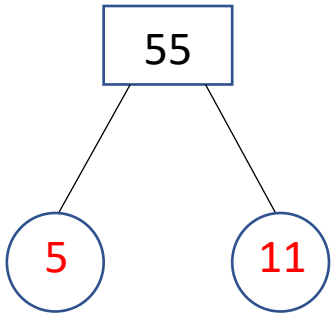
26 = 2 x 13

2)



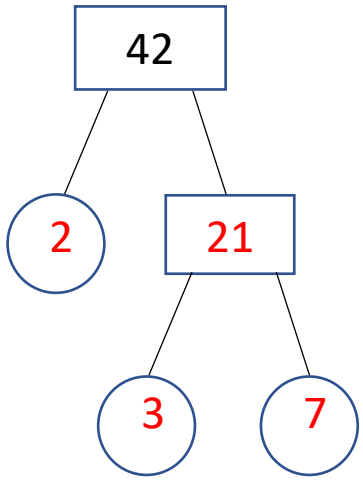
21 = 3 x 7

3)



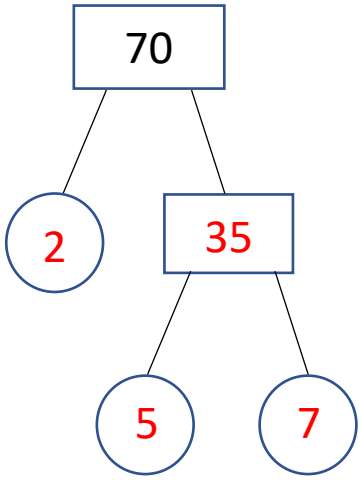
55 = 5 x 11

4)



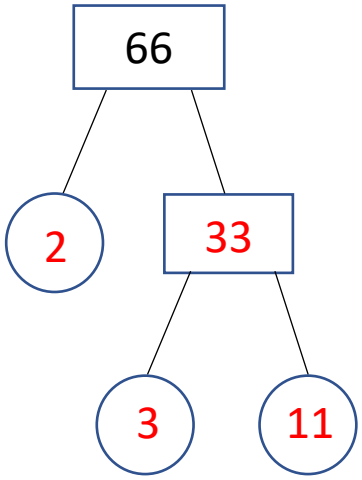
42 = 2 x 3 x 7

5)



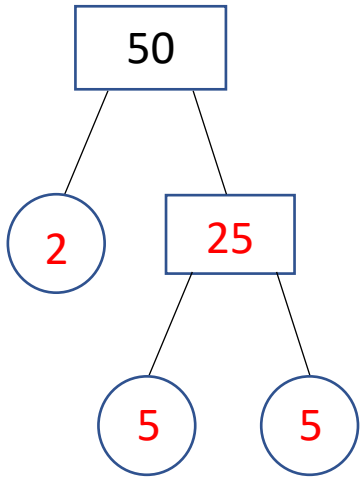
70 = 2 x 5 x 7

6)



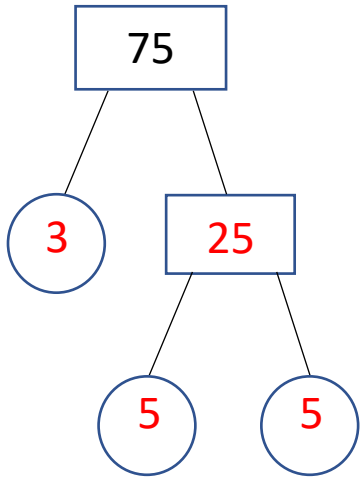
66 = 2 x 3 x 11

7)



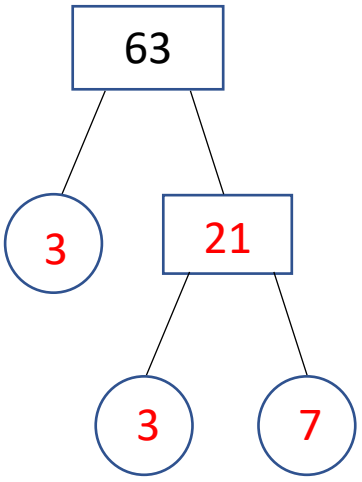
50 = 2 x 5 x 5

8)



75 = 3 x 5 x 5

9)



63 = 3 x 3 x 7