BROAD HORIZON
TUITION CENTRE

11+ Tuition – Year 4

Summer Booster Sessions

Maths

ANSWERS

Addition – Decimal Numbers

5.54 + 4.30 = **9.84**	12.09 + 8.48 = **20.57**	33.41 + 11.97 = **45.38**
73.05 + 41.29 = **114.34**	50.99 + 82.25 = **133.24**	50.01 + 39.39 = **89.40**
61.94 + 24.91 = **86.85**	45.10 + 87.63 = **132.73**	43.36 + 91.03 = **134.39**
43.70 + 89.31 = **133.01**	90.01 + 21.58 = **111.59**	18.91 + 48.15 = **67.06**
66.13 + 79.33 = **145.46**	10.55 + 99.99 = **110.54**	39.16 + 92.37 = **131.53**

Adding decimals (up to 3 decimal digits)

Grade 5 Decimals Worksheet

Find the sum.

1. 0.164 + 0.11 = 0.274
2. 0.154 + 1.61 = 1.764
3. 1.09 + 0.055 = 1.145
4. 1.46 + 0.34 = 1.80
5. 1.89 + 0.185 = 2.075
6. 0.161 + 0.073 = 0.234
7. 1.50 + 0.200 = 1.700
8. 0.12 + 1.55 = 1.67
9. 0.082 + 0.58 = 0.662
10. 0.117 + 0.48 = 0.597
11. 0.66 + 0.085 = 0.745
12. 0.62 + 1.89 = 2.51
13. 0.131 + 0.016 = 0.147
14. 0.199 + 0.096 = 0.295
15. 1.36 + 1.76 = 3.12
16. 1.52 + 1.24 = 2.76
17. 1.39 + 0.070 = 1.460
18. 0.077 + 0.01 = 0.087
19. 0.019 + 0.022 = 0.041
20. 1.92 + 1.63 = 3.55

Subtraction – Decimal Numbers

9.65 − 2.12 = **7.53**	10.99 − 2.22 = **8.77**	65.23 − 17.10 = **48.13**	74.55 − 37.69 = **36.86**
20.79 − 17.50 = **3.29**	39.10 − 37.14 = **1.96**	81.91 − 37.31 = **44.60**	25.09 − 20.12 = **4.97**
65.16 − 28.47 = **36.69**	13.05 − 6.37 = **6.68**	90.27 − 45.18 = **45.09**	68.64 − 38.98 = **29.66**
96.10 − 55.03 = **41.07**	29.06 − 23.33 = **5.73**	72.13 − 48.40 = **23.73**	

1. 0.98 - 0.67 = 0.31
2. 7.6 - 0.41 = 7.19
3. 9.3 - 0.72 = 8.58
4. 8.5 - 0.48 = 8.02
5. 5.9 - 5.6 = 0.3
6. 5.3 - 0.36 = 4.94
7. 0.83 - 0.33 = 0.50
8. 0.84 - 0.42 = 0.42
9. 0.92 - 0.45 = 0.47
10. 0.47 - 0.28 = 0.19
11. 0.88 - 0.43 = 0.45
12. 7.8 - 0.63 = 7.17
13. 9.4 - 0.47 = 8.93
14. 0.61 - 0.53 = 0.08
15. 5.4 - 2.7 = 2.7
16. 0.81 - 0.17 = 0.64
17. 0.76 - 0.11 = 0.65
18. 6.4 - 0.57 = 5.83

Column Multiplication

359 x 42 = 15078	689 x 21 = 14469	127 x 69 = 8763	800 x 65 = 52000
763 x 21 = 16023	487 x 58 = 28246	922 x 37 = 34114	107 x 41 = 4387
321 x 58 = 18618	237 x 38 = 9006	437 x 29 = 12673	830 x 25 = 20750
482 x 52 = 25064	490 x 31 = 15190	369 x 35 = 12915	615 x 95 = 58425

Multiplication – Decimal Numbers

Find the product.

1. 4 × 7.1 = 28.4
2. 2 × 6.2 = 12.4
3. 2 × 1.7 = 3.4
4. 3 × 4.0 = 12.0
5. 8 × 0.09 = 0.72
6. 5 × 0.66 = 3.30
7. 5 × 0.42 = 2.10
8. 8 × 1.1 = 8.8
9. 3 × 4.5 = 13.5
10. 4 × 0.10 = 0.40
11. 10 × 3.8 = 38.0
12. 4 × 8.4 = 33.6
13. 2 × 3.3 = 6.6
14. 4 × 5.8 = 23.2
15. 4 × 0.34 = 1.36
16. 1 × 0.80 = 0.80

Division

$2\overline{)799} = 399\ r\ 1$ $2\overline{)541} = 270\ r\ 1$ $4\overline{)2833} = 708\ r\ 1$ $3\overline{)2889} = 963$

$2\overline{)1867} = 933\ r\ 1$ $3\overline{)1462} = 487\ r\ 1$ $7\overline{)6776} = 968$ $6\overline{)630} = 105$

$6\overline{)4668} = 778$ $4\overline{)3252} = 813$ $3\overline{)1074} = 358$ $9\overline{)3109} = 345\ r\ 4$

Division – Decimal Numbers

Answers

1) 0.2
2) 0.01
3) 0.42
4) 0.02
5) 0.2
6) 0.24
7) 0.2
8) 0.81
9) 0.2
10) 0.33
11) 0.3
12) 0.9
13) 0.5
14) 0.7
15) 0.11
16) 0.27

1. Calculate the following:

a. 4 – 5
-1

b. 2 + -6
-4

c. 10 – 12
-2

d. -10 + 2
-8

e. -4 + 3
-1

f. -7 + 11
4

g. -4 + -8
-12

h. -2 + -3
-5

i. -2 – -8
6

j. 10 – -9
19

k. -2 – -16
14

l. 7 – -4
11

m. 11 – 20
-9

n. 43 – 56
-13

o. -21 + -15
-36

2. Calculate the following:

a. 4 × -2
-8

b. -11 × 12
-132

c. 10 × -8
-80

d. -18 ÷ -3
6

e. -56 ÷ 7
-8

f. -64 ÷ -4
16

g. -9 × -12
108

h. 24 × -6
-144

i. -120 ÷ 4
-30

j. 685 ÷ -5
-137

k. -7 × -13
91

l. 12 ÷ -0.5
-24

m. -1 ÷ -2
0.5

n. -146 × 6
-876

o. -254 × -8
2032

p. $(-12)^2$
-12 × -12 = 144

q. $(-8)^2$
-8 × -8 = 64

r. $(-3)^3$
-3 × -3 × -3 = -27

Practice - BIDMAS – Order of Operations

Solve.

1) $4^3 + 15 \div 3$

Ans = 69

2) $7 \times 2^4 - 28$

Ans = 84

3) $6^2 - 92 \div 4$

Ans = 13

4) $2 \times 3^3 + 10$

Ans = 64

5) $5^2 \times 6 - 85$

Ans = 65

6) $64 \div 2^5 + 24$

Ans = 26

7) $70 \div 5 - 2^3$

Ans = 6

8) $4^2 + 7 \times 2$

Ans = 30

9) $2 \times 3^3 + 1$

Ans = 55

10) $7 + 80 \div 4^2$

Ans = 12

Solve.

1) $4^2 - 2 \times 3$

Ans = 10

2) $11 + 2^4 \div 8$

Ans = 13

3) $5^2 \div 5 + 22$

Ans = 27

4) $3 \times 7^2 + 1$

Ans = 148

5) $3^3 + 2 \times 8$

Ans = 43

6) $96 \div 2^5 - 2$

Ans = 1

7) $10 \times 12 - 2^4$

Ans = 104

8) $8^2 + 16 \div 4$

Ans = 68

9) $3^3 \div 9 + 2$

Ans = 5

10) $10 \times 5^2 - 172$

Ans = 78

Further Practice - BIDMAS – Order of Operations

Solve.

1) $5^2 + 26 \div 2 - 67$

Ans = **– 29**

2) $16 \times 2^3 - 19 + 3^2$

Ans = **118**

3) $19 - 10 \div 5 + 6^2 \times 2$

Ans = **89**

4) $4^2 \times 3 - 2^4 + 21 \div 7$

Ans = **35**

5) $8^2 + 1 \times 5 - 45$

Ans = **24**

6) $24 \div 3 + 5^3 - 13^2$

Ans = **– 36**

7) $48 \div 12 - 4^3 + 3$

Ans = **– 57**

8) $9^2 + 2 \times 3 \div 6 - 49$

Ans = **33**

9) $3 \times 2^5 + 15 - 12^2$

Ans = **– 33**

10) $8 + 88 \div 11 - 4^3 + 2$

Ans = **– 46**

Practice Questions – Time Differences

W

Q.No	Start Time	End Time	Elapsed Time
1)	3:00 A.M.	11:30 A.M.	8 hours and 30 minutes
2)	4:00 P.M.	8:30 P.M.	4 hours and 30 minutes
3)	10:30 A.M.	11:30 A.M.	1 hour
4)	5:00 P.M.	8:00 P.M.	3 hours
5)	7:30 A.M.	10:30 A.M.	3 hours
6)	3:30 P.M.	5:30 P.M.	2 hours
7)	4:30 A.M.	NOON	7 hours and 30 minutes
8)	6:30 P.M.	7:30 P.M.	1 hour
9)	1:30 A.M.	6:30 A.M.	5 hours
10)	1:00 P.M.	9:00 P.M.	8 hours
11)	11:00 A.M.	11:30 A.M.	30 minutes
12)	2:30 A.M.	7:30 A.M.	5 hours
13)	2:00 P.M.	11:30 P.M.	9 hours and 30 minutes
14)	6:00 P.M.	8:30 P.M.	2 hours and 30 minutes
15)	NOON	8:30 P.M.	8 hours and 30 minutes

Note: the elapsed time is how much time has gone by. So, if Q1 starts at 4:30am and 3 hours go by, what is the end time? **Answer = 7:30am**

Question 3, the end time was 8:30am and 6 hours an 30 mins had gone by, so you need to subtract 6 hours and 30 minutes from 8:30am, first subtract the whole hours then the minutes.

Q.No	Start Time	End Time	Elapsed Time
1)	4:30 A.M.	7:30 A.M.	3 hours
2)	5:00 P.M.	6:30 P.M.	1 hour and 30 minutes
3)	2:00 A.M.	8:30 A.M.	6 hours and 30 minutes
4)	1:30 A.M.	4:30 A.M.	3 hours
5)	6:30 P.M.	11:30 P.M.	5 hours
6)	1:30 P.M.	10:30 P.M.	9 hours
7)	3:00 A.M.	5:30 A.M.	2 hours and 30 minutes
8)	6:00 P.M.	11:00 P.M.	5 hours
9)	7:30 A.M.	8:30 A.M.	1 hour
10)	10:00 A.M.	NOON	2 hours
11)	4:30 P.M.	9:30 P.M.	5 hours
12)	8:00 A.M.	9:30 A.M.	1 hour and 30 minutes
13)	5:30 P.M.	11:30 P.M.	6 hours
14)	1:30 A.M.	6:30 A.M.	5 hours
15)	5:00 A.M.	8:30 A.M.	3 hours and 30 minutes

Further Practice – Time Differences

Q.No	Start Time	End Time	Elapsed Time
1)	1:30 A.M.	8:45 A.M.	7 hours and 15 minutes
2)	6:30 P.M.	9:30 P.M.	3 hours
3)	9:15 A.M.	10:15 A.M.	1 hour
4)	3:15 P.M.	7:00 P.M.	3 hours and 45 minutes
5)	6:30 P.M.	10:45 P.M.	4 hours and 15 minutes
6)	2:30 A.M.	4:30 A.M.	2 hours
7)	5:30 A.M.	8:45 A.M.	3 hours and 15 minutes
8)	7:00 P.M.	9:30 P.M.	2 hours and 30 minutes
9)	4:15 A.M.	7:15 A.M.	3 hours
10)	2:30 A.M.	5:45 A.M.	3 hours and 15 minutes
11)	6:15 P.M.	9:00 P.M.	2 hours and 45 minutes
12)	5:00 A.M.	6:30 A.M.	1 hour and 30 minutes
13)	1:15 P.M.	11:00 P.M.	9 hours and 45 minutes
14)	5:15 A.M.	8:00 A.M.	2 hours and 45 minutes
15)	7:30 P.M.	8:45 P.M.	1 hour and 15 minutes

★

1. No
2. 9:25am, 10:05am, 12:55pm and 1:25pm
3. 5 minutes
4. 8:30am
5. 6
6. Sunny Avenue
7. Star Street
8. 501
9. Star Street
10. 7

Homework – Fraction of a Number

1) Find $\frac{2}{6}$ of 108 =
36

2) Find $\frac{1}{4}$ of 32 =
8

3) Find $\frac{1}{12}$ of 48 =
4

4) Find $\frac{2}{5}$ of 50 =
20

11) Find $\frac{1}{8}$ of 96 =
12

12) Find $\frac{1}{5}$ of 25 =
5

13) Find $\frac{4}{6}$ of 144 =
96

14) Find $\frac{1}{6}$ of 72 =
12

7. A dressmaker has 10m of fabric to make an outfit. He makes a bag with $\frac{1}{10}$ of the fabric, a skirt with ½ of the fabric and a top with the rest.
   a. How much fabric is used for the bag? **1m**
   b. How much fabric is used for the skirt? **5m**
   c. How much fabric is used for the top and what is this as a fraction of the total fabric? **4m = $\frac{4}{10}$ or $\frac{2}{5}$**

8. A chef ordered twenty-four eggs for her restaurant. $\frac{1}{12}$ of the eggs were used for a chocolate brownie special and ¼ of the eggs were used for cooked breakfasts. From the remainder, ½ of the eggs were used for the meringue in an Eton Mess pudding.
   a. How many eggs were used for the chocolate brownie? **2**
   b. How many eggs were used for the breakfasts? **6**
   c. How many eggs were used for the Eton Mess? **8**
   d. How many eggs were left? **8**

9. At the county running championships, a school won 12 medals. ½ of the medals were gold, $\frac{1}{3}$ of the medals were silver and $\frac{1}{6}$ of the medals were bronze.
   a. How many medals were gold? **6**
   b. How many medals were silver? **4**
   c. How many medals were bronze? **2**

Homework – Adding and Subtracting Fractions

1) $\frac{2}{8} + \frac{3}{4} = \frac{2}{8} + \frac{6}{8} = \frac{8}{8} = 1$

2) $\frac{11}{20} + \frac{2}{5} = \frac{11}{20} + \frac{8}{20} = \frac{19}{20}$

3) $\frac{3}{6} + \frac{3}{5} = \frac{15}{30} + \frac{18}{30} = \frac{33}{30} = \frac{11}{10} = 1\frac{1}{10}$

4) $\frac{3}{4} + \frac{5}{6} = \frac{9}{12} + \frac{10}{12} = \frac{19}{12} = 1\frac{7}{12}$

1) $\frac{3}{10} - \frac{1}{4} = \frac{6}{20} - \frac{5}{20} = \frac{1}{20}$

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

3) $\frac{6}{8} - \frac{1}{3} = \frac{18}{24} - \frac{8}{24} = \frac{10}{24} = \frac{5}{12}$

4) $\frac{3}{10} - \frac{1}{5} = \frac{3}{10} - \frac{2}{10} = \frac{1}{10}$

$\frac{2}{5} + 2 = 2\frac{2}{5} = \frac{12}{5}$

10) $\frac{1}{12} + 8 = 8\frac{1}{12} = \frac{97}{12}$

$7 + \frac{6}{11} = 7\frac{6}{11} = \frac{83}{11}$

12) $\frac{2}{3} + 6 = 6\frac{2}{3} = \frac{20}{3}$

$\frac{1}{2} + 9 = 9\frac{1}{2} = \frac{19}{2}$

14) $3 + \frac{14}{19} = 3\frac{14}{19} = \frac{71}{19}$

Find the product.

1. $\frac{2}{10} \times \frac{4}{6} = \frac{2}{15}$
2. $\frac{11}{18} \times \frac{15}{25} = \frac{11}{30}$
3. $\frac{1}{2} \times \frac{5}{15} = \frac{1}{6}$
4. $\frac{4}{16} \times \frac{1}{9} = \frac{1}{36}$
5. $\frac{21}{25} \times \frac{1}{2} = \frac{21}{50}$
6. $\frac{11}{20} \times \frac{5}{7} = \frac{11}{28}$
7. $\frac{2}{15} \times \frac{12}{20} = \frac{2}{25}$
8. $\frac{4}{5} \times \frac{13}{21} = \frac{52}{105}$
9. $\frac{7}{9} \times \frac{4}{8} = \frac{7}{18}$
10. $\frac{2}{12} \times \frac{5}{6} = \frac{5}{36}$
11. $\frac{5}{16} \times \frac{6}{8} = \frac{15}{64}$
12. $\frac{4}{9} \times \frac{5}{7} = \frac{20}{63}$
13. $\frac{1}{11} \times \frac{9}{21} = \frac{3}{77}$
14. $\frac{12}{18} \times \frac{8}{25} = \frac{16}{75}$

Grade 5 Fractions Worksheet

Multiply.

1. $1 \times \frac{1}{6} = \frac{1}{6}$
2. $9 \times \frac{7}{10} = 6\frac{3}{10}$
3. $7 \times \frac{4}{8} = 3\frac{1}{2}$
4. $\frac{1}{2}$ of $2 = 1$
5. $\frac{1}{12}$ of $1 = \frac{1}{12}$
6. $\frac{2}{6}$ of $2 = \frac{2}{3}$
7. $\frac{1}{3}$ of $5 = 1\frac{2}{3}$
8. $\frac{3}{10}$ of $8 = 2\frac{2}{5}$
9. $\frac{1}{5}$ of $5 = 1$
10. $\frac{2}{4}$ of $9 = 4\frac{1}{2}$
11. $8 \times \frac{1}{8} = 1$
12. $9 \times \frac{4}{6} = 6$
13. $\frac{4}{5}$ of $5 = 4$
14. $7 \times \frac{5}{10} = 3\frac{1}{2}$
15. $\frac{2}{12}$ of $9 = 1\frac{1}{2}$
16. $\frac{1}{2}$ of $9 = 4\frac{1}{2}$

Find the quotient.

1. $\frac{4}{6} \div \frac{3}{4} = \frac{8}{9}$

2. $\frac{1}{9} \div \frac{11}{12} = \frac{4}{33}$

3. $\frac{3}{5} \div \frac{1}{2} = 1\frac{1}{5}$

4. $\frac{6}{7} \div \frac{2}{5} = 2\frac{1}{7}$

5. $\frac{6}{8} \div \frac{5}{7} = 1\frac{1}{20}$

6. $\frac{7}{12} \div \frac{1}{2} = 1\frac{1}{6}$

7. $\frac{3}{9} \div \frac{1}{11} = 3\frac{2}{3}$

8. $\frac{5}{10} \div \frac{6}{12} = 1$

9. $\frac{1}{2} \div \frac{1}{9} = 4\frac{1}{2}$

10. $\frac{1}{2} \div \frac{1}{12} = 6$

Divide.

1. $\frac{2}{3} \div 9 = \frac{2}{27}$

2. $2 \div \frac{2}{10} = 10$

3. $\frac{2}{4} \div 7 = \frac{1}{14}$

4. $5 \div \frac{1}{2} = 10$

5. $\frac{7}{8} \div 1 = \frac{7}{8}$

6. $3 \div \frac{1}{10} = 30$

7. $1 \div \frac{3}{5} = 1\frac{2}{3}$

8. $\frac{9}{12} \div 5 = \frac{3}{20}$

9. $9 \div \frac{2}{3} = 13\frac{1}{2}$

10. $\frac{2}{6} \div 3 = \frac{1}{9}$

11. $5 \div \frac{1}{5} = 25$

12. $\frac{5}{10} \div 4 = \frac{1}{8}$

13. $2 \div \frac{1}{2} = 4$

14. $6 \div \frac{11}{12} = 6\frac{6}{11}$

Homework - Conversions

Decimal	Place Value Chart				How many hundredths?
0.73	Ones		tenths	hundredths	**73 hundredths = $\frac{73}{100}$**
	0	.	7	3	
0.20	Ones		tenths	hundredths	**20 hundredths = $\frac{20}{100}$ or $\frac{20}{10}$**
	0	.			
zero point four six	Ones		tenths	hundredths	**46 hundredths = $\frac{46}{100}$**
	0	.			
nought point nought 4	Ones		tenths	hundredths	**4 hundredths = $\frac{4}{100}$**
	0	.			
0.42	Ones		tenths	hundredths	**42 hundredths = $\frac{42}{100}$**
	0	.			
0.66	Ones		tenths	hundredths	**66 hundredths = $\frac{66}{100}$**
	0	.			
0.99	Ones		tenths	hundredths	**99 hundredths = $\frac{99}{100}$**
	0	.			

C. What do you think this decimal is as a fraction?

O		t	h	th
0	.	0	0	7

7 thousandths = 7/1000

Convert the decimals into Fractions

1) 0.86 = 43/50

2) 0.053 = 53/1000

3) 0.2 = 1/5

4) 0.721 = 721/1000

5) 0.04 = 1/25

6) 0.665 = 133/200

7) 0.68 = 17/25

8) 0.888 = 111/125

Quick tip: Just x 100

Convert the Decimals to Percentages

1) 1.51 = 151%
2) 0.6522 = 65.22%
3) 1.62 = 162%
4) 0.0004 = 0.04%
5) 0.051 = 5.1%
6) 0.432 = 43.2%
7) 1.621 = 162.1%
8) 0.09 = 9%
11) 0.1 = 10%
10) 0.62 = 62%
13) 0.7 = 70%
12) 0.6566 = 65.66%
15) 0.652 = 65.2%
14) 0.33 = 33%

Convert Percentages to Decimals

Quick tip: Just ÷ 100

1) 66% = 0.66
2) 562% = 5.62
3) 3% = 0.03
4) 53% = 0.53
5) 2.5% = 0.025
6) 92% = 0.92
7) 1% = 0.01
8) 86% = 0.86
9) 6.3% = 0.063
10) 0.36% = 0.0036
11) 6600% = 66
12) 0.2% = 0.002

Convert the following fractions to their equivalent percentage. The first one has been done for you.

17. $\frac{73}{100}$ = 73%

18. $\frac{86}{100}$ = 86%

19. $\frac{20}{100}$ = 20%

20. $\frac{60}{100}$ = 60%

21. $\frac{9}{20}$ = 45%

22. $\frac{17}{100}$ = 17%

23. $\frac{65}{100}$ = 65%

24. $\frac{7}{10}$ = 70%

25. $\frac{22}{100}$ = 22%

Challenge

26. $\frac{4}{50}$ = 8%

27. $\frac{13}{20}$ = 65%

28. $\frac{5}{25}$ = 20%

29. $\frac{45}{50}$ = 90%

30. $\frac{5}{10}$ = 50%

Convert Percentages to Fractions

Quick tip: Give each percentage a denominator of 100 and simplify

1) 65% = 13/20
2) 51% = 51/100
3) 7% = 7/100
4) 72% = 18/25
5) 36% = 9/25
6) 85% = 17/20
7) 5% = 1/20
8) 3% = 3/100
9) 92% = 23/25
10) 12% = 3/25
11) 1% = 1/100
12) 19% = 19/100

Practice – Percentages of Numbers

Question	Answer
1	72
2	0.5
3	5
4	25
5	21
6	45
7	21
8	2.5
9	32
10	45
11	72
12	14
13	27.5
14	93.5
15	22.5

Question	Answer
16	15
17	18
18	123.5
19	19.5
20	9.5
21	44
22	544
23	345
24	931
25	243
26	77
27	15.5
28	533
29	390
30	480

Further Practice – Percentages of Numbers

Percentage increase

Name ANS

Question	Number	10%	20%	5%
1.	240	24	48	12
2.	520	52	104	26
3.	2600	260	520	130
4.	780	78	156	39
5.	60	6	12	3
6.	90	9	18	4.5
7.	25	2.5	5	1.25

1. Find 240 increased by 10%

   10% of 240 = 24

   240 + 24 = 264

2. Find 780 increased by 10%

   10% of 780 = 78

   780 + 78 = 858

3. Find 90 increased by 10%

   10% of 90 = 9

   90 + 9 = 99

4. Find 520 increased by 10%

   10% of 520 = 52

   520 + 52 = 572

5. Find 240 increased by 20%

   20% of 240 = 48

   240 + 48 = 288

6. Find 60 increased by 20%

   20% of 60 = 12

   ~~240~~ 60 + 12 = 72

7. Find 2600 increased by 5%

   5% of 2600 = 130

   2600 + 130 = 2730

8. Find 25 increased by 5%

   5% of 25 = 1.25

   25 + 1.25 = 26.25

Now try these without the help from your table:

9. Find 220 increased by 20%

10% of 220 = 22

20% of 220 = 44

220 + 44 = 264

10. Find 840 increased by 20%

10% of 840 = 84

20% of 840 = 168

840 + 168 = 1008

Try some other percentages:

14. Find 820 increased by 30%

10% of 820 = 82

30% of 820 = 246

820 + 246 = 1066

15. Find 210 increased by 40%

10% of 210 = 21

40% of 210 = 84

210 + 84 = 294

1) 140

126

2) 60

54

3) 150

135

4) 230

207

5) 380

242

6) 760

684

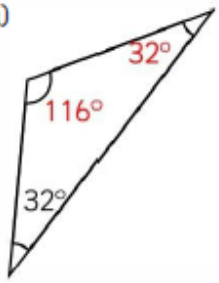
7) 980

882

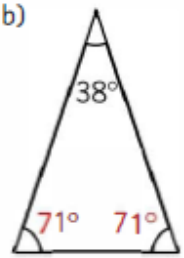
Missing Angles in Isosceles Triangles - Answers

Calculate the missing angles in these Isosceles triangles.

a)



b)



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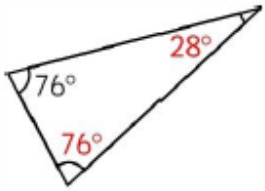
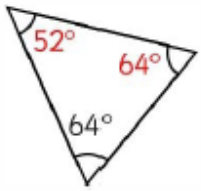
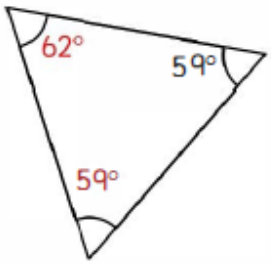


d)

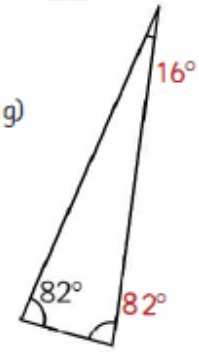


e)

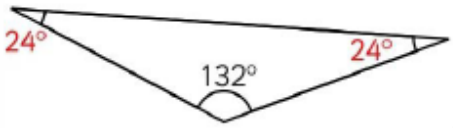
f)



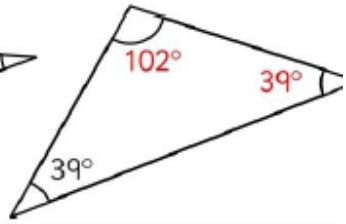
g)



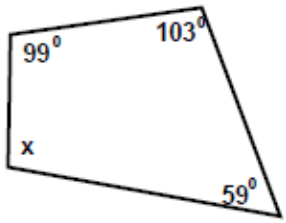
h)



i)

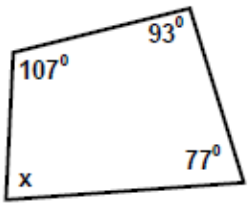


1)



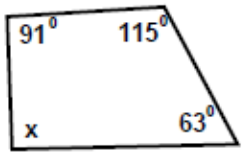
Solve for x 99°

2)



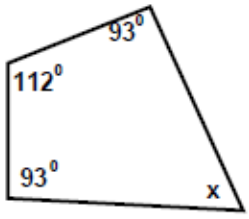
Solve for x 83°

3)



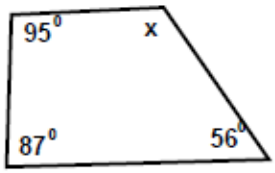
Solve for x 91°

4)



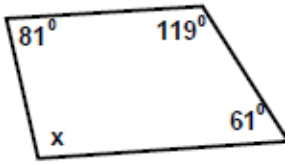
Solve for x 62°

5)



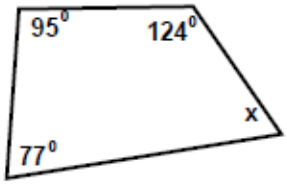
Solve for x 122°

6)



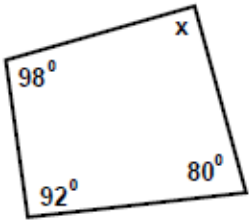
Solve for x 99°

7)



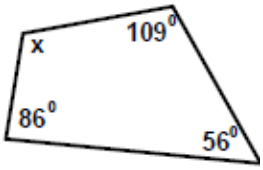
Solve for x 64°

8)



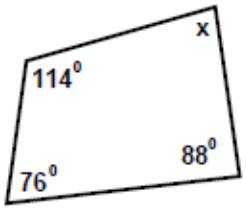
Solve for x 90°

9)



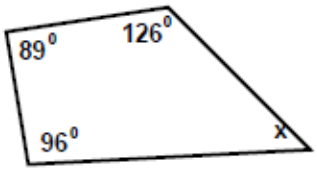
Solve for x 109°

10)



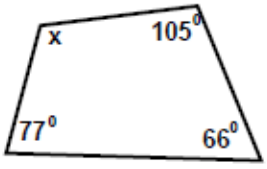
Solve for x 82°

11)



Solve for x 49°

12)



Solve for x 112°

[redacted]

Section Five — Shape and Space

Page 26

1. 40°
The three angles in a triangle add up to 180°.
Angle x = 180 – 65 – 75 = 40°.

2. Acute
Angles that are smaller than a right angle (90°) are acute angles.

3. 105°
Angles on a straight line add up to 180°.
Angle y = 180 – 75 = 105°.

4. Obtuse
Angles that are bigger than 90° but smaller than 180° are obtuse angles.

5. 295°
Angles around a point add up to 360°. Angle z = 360 – 65 = 295°.

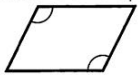
6. 180°
Angles on a straight line add up to 180°.

7. 123°
Angles on a straight line add up to 180°.
Angle U = 180 – 34 – 23 = 123°.

8. 23°
The three angles in a triangle add up to 180°.
180 – 90 – 67 = 23°.

9. 45°
The angle looks to be half of the size of a right angle. A right angle is 90°, so the size of the angle is about 90 ÷ 2 = 45°.

10. A
An obtuse angle is an angle that is bigger than 90° and smaller than 180°. Shape A contains two obtuse angles.



11. 210°
Each angle in an equilateral triangle is 60° and each angle in a square is a right angle (90°). The shaded angle is made up of one angle from the square and two angles from the equilateral triangles: 90 + 60 + 60 = 210°.

12. 70°
The angles in a quadrilateral add up to 360°. The size of the fourth angle inside the shape = 360 – 85 – 83 – 82 = 110°.
The angles on a straight line add up to 180°
so angle y = 180 – 110 = 70°.

13. 10
There are 360° in a full circle and the numbers on a clock face divide the circle into 12 equal sectors. Each sector has an angle of 360 ÷ 12 = 30°. The minute hand has moved 300° so it has moved through 10 sectors (30 × 10 = 300). If the minute hand moves on 10 sectors from 12 it is pointing at 10.

[redacted]

[redacted]

Section Five — Shape and Space

Page 27

1. A
Small squares are used to show right angles, so A is definitely a right angle.

2. C
Angle C is biggest because it is the only angle that is bigger than 180°.

3. B and E
An acute angle is smaller than a right angle.

4. D
An obtuse angle is bigger than a right angle but smaller than two right angles (the angle along a straight line).

5. C
Reflex angles are larger than two right angles (the angle along a straight line).

6. B
A right angle is 90°, so 45° is half a right angle. Angle B is about half a right angle.

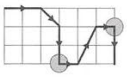
7. A
A right angle is 90°, so 180° is two right angles, or the angle along a straight line. Angle A is along a straight line.

8. E
135° is bigger than a right angle (90°) but smaller than the angle along a straight line (180°). So angle E is the only one that could be 135°.

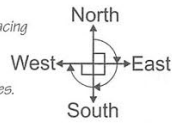
9. D
70° is slightly smaller than a right angle (90°). C is the only angle that is slightly smaller than a right angle.

10. C
A right angle is like the corner of a square. Angle C looks like it is this size.

11. C
The right angles that the ant turns through are marked on this diagram.



12. 270°
Turning clockwise from facing north to facing west means turning through three right angles. This is 3 × 90° = 270°.



13. C
Turning 90° anticlockwise from facing south means turning one right angle to the left. If he was facing south, he'd be pointing east when he made the turn.

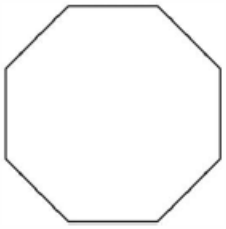
14. B
The angle between the hands is equal to 1 right angle (90°) plus one-third of a right angle (90° ÷ 3 = 30°). So the total angle is 90° + 30° = 120°. Alternatively, just by looking at the angle you can see that it is between 90° and 180°. The only options between these angles are 120° and 150°. You can tell from the diagram that the angle is closer to 90° than 180°, so the answer must be 120° — option B.

15. 110°
There are 180° on a straight line, so angle y = 180° – 40° – 30° = 110°.

[redacted]

Find the sum of the interior angles of each polygon.

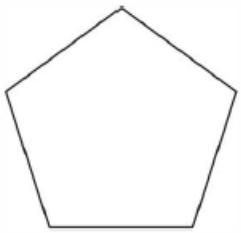
1)



Number of sides = 8

Sum of the interior angles = 1080°

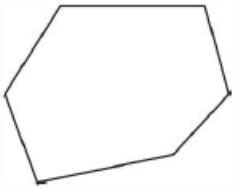
2)



Number of sides = 5

Sum of the interior angles = 540°

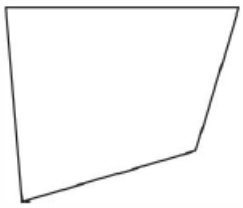
3)



Number of sides = 6

Sum of the interior angles = 720°

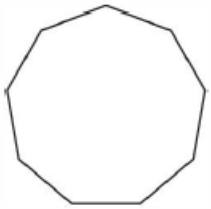
4)



Number of sides = 4

Sum of the interior angles = 360°

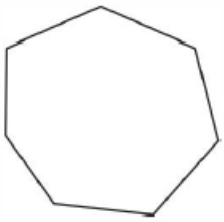
5)



Number of sides = 9

Sum of the interior angles = 1260°

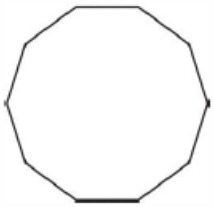
6)



Number of sides = 7

Sum of the interior angles = 900°

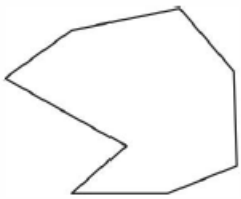
7)



Number of sides = 10

Sum of the interior angles = 1440°

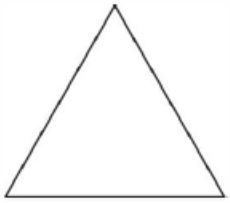
8)



Number of sides = 8

Sum of the interior angles = 1080°

9)

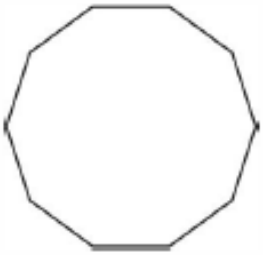


Number of sides = 3

Sum of the interior angles = 180°

Find the sum of the interior angles of each polygon.

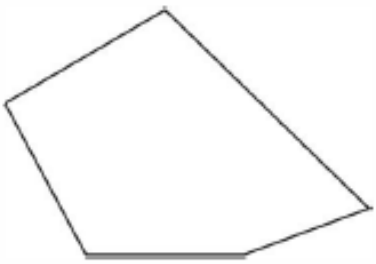
1)



Number of sides = 10

Sum of the interior angles = 1440°

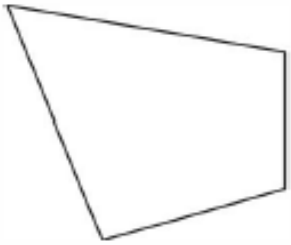
2)



Number of sides = 5

Sum of the interior angles = 540°

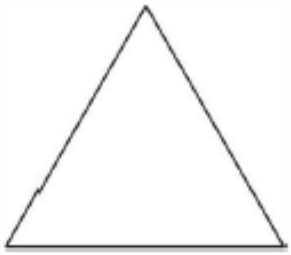
3)



Number of sides = 4

Sum of the interior angles = 360°

4)



Number of sides = 3

Sum of the interior angles = 180°

5) 12-gon

Number of sides = 12

Sum of the interior angles = 1800°

6) 17-gon

Number of sides = 17

Sum of the interior angles = 2700°

7) 18-gon

Number of sides = 18

Sum of the interior angles = 2880°

8) 14-gon

Number of sides = 14

Sum of the interior angles = 2160°

Practice - Ratio

1)

The ratio of vegetables to potatoes **8 : 3**

2)

The ratio of T-shirts to clothes **5 : 9**

3)

The ratio of furniture to chairs **6 : 1**

4)

The ratio of rabbits to domestic animals **2 : 8 or 1 : 4**

5)

The ratio of stationery to erasers **7 : 4**

Ratio: Dividing into Parts

Sheet 1

Find the share of each part.

1) Divide $50 in the ratio 2 : 3.

$20 and $30

2) Divide 81 ft in the ratio 5 : 4.

45 ft and 36 ft

3) Divide 105 lb in the ratio 8 : 7.

56 lb and 49 lb

4) Divide 49 yd in the ratio 1 : 6.

7 yd and 42 yd

5) Divide 72 oz in the ratio 4 : 5.

32 oz and 40 oz

6) Divide 121 mi in the ratio 9 : 2.

99 mi and 22 mi

7) Jace gave $100 to her daughter Kailey and asked her to spend three parts and save two parts of the total amount. How much did Kailey spend and how much did she save?

$60 and $40

Further Practice - Ratio

Answer Key

Ratio - Two Quantities

Sheet 1

1) A new born baby has 270 bones and an adult has 206 bones. Find the ratio of bones in an adult to that of a new born baby?

206 : 270 or 103 : 135

2) Kim receives 120 official e-mails on Monday morning. She responds to 60 e-mails. What is the ratio of e-mails that Kim received to the mails that she answered?

120 : 60 or 2 : 1

3) A boutique sold 72 designer outfits and 24 pieces of jewelry over the Christmas weekend. Find the ratio of the number of outfits sold to the pieces of jewelry sold?

72 : 24 or 3 : 1

4) There are 26 letters in the English language and 24 in Korean. What is the ratio of letters in the Korean language to the letters in the English language?

24 : 26 or 12 : 13

5) The Earth takes 24 hours to rotate around its own axis and the moon takes 27 days. What is the ratio of the time taken by the moon to the time taken by the Earth to rotate around their respective axes? (Hint: Convert hours to days)

27 : 1

Finding Whole From The Part

Sheet 1

1) Sam and Jo collected stamps in the ratio of 6 : 5. If Sam collects 36 stamps, how many stamps did they collect altogether?

66 stamps collected altogether

2) Ray and Jessica contest in an election. They receive votes in the ratio 7 : 9. If the successful candidate receives 1080 votes, how many votes were cast in all?

1920 votes were cast in all

3) Eggplants and okra were planted in a vegetable garden in the ratio of 4 : 1. If 333 okra seedlings are present, find the total number of seedlings in the garden.

Total of 1665 seedlings were planted

4) Henry went on a fishing trip. He hooked a salmon for every 2 catfish he caught. What was his total catch, if he caught 16 catfish?

24 fish in total

5) Rhea saved three parts of her salary and spent one part of it to rent an apartment. If she spent $765 on rent, calculate Rhea's earnings.

Rhea earns $3060

Homework – Ratio

Answer Key

Finding Part From Whole

Sheet 1

1) Roy rears Randall and Jersey cattle breeds in the ratio of 6 : 5. If he has a total of 242 cattle on his farm, how many Randall cattle and how many Jersey cattle does he own?

132 Randall cattle and 110 Jersey cattle

2) Joanna is reading a storybook. The ratio of the number of pages she read to the pages that remain to be read is 7 : 3. If the book contains 500 pages in all, how many pages did Joanna read and how many pages remain to be read?

She read 350 pages and150 pages remain to be read

3) George and Tanya typed in words in the ratio of 1 : 5 in 20 minutes. They typed 864 words altogether. Find the number of words that each of them typed.

George typed 144 words and Tanya typed 720 words

4) Mailmen, Carl and Wilbur deliver mails in the ratio of 3 : 8 in the month of April. If 1012 mails were delivered in all between them, how many mails did each of them deliver?

Carl delivered 276 mails and Wilbur delivered 736 mails

5) A wire that is 117 inches long is cut in two in the ratio 8 : 1. Find the length of each piece of wire.

One wire measures 104 inches and the other 13 inches

Probability (1)

Dice

1. A fair dice is rolled.
   What is the probability of rolling:

   (a) 6 ***=1/6*** (b) 3 ***=1/6***

   (c) 2 or 3 ***=1/3*** (d) even number ***=1/2***

   (e) number greater than 2 ***=2/3***

2. A fair dice is rolled.
   What is the probability of rolling:

   (a) 1 ***=1/6*** (b) 2,3 or 4 ***=1/2***

   (c) 3 or 5 ***=1/3*** (d) number less than 2 ***=1/6***

3. A fair dice is rolled.
   What is the probability of rolling:

   (a) 1 or 3 ***=1/3*** (b) 2,3,4 or 5 ***=2/3***

   (c) 7 ***=0*** (d) number less than 10 ***=1***

Letters

1. A random letter is chosen from INTEGER
   What is the probability of choosing:

   (a) T ***=1/7*** (b) G ***=1/7*** (c) E ***=2/7***

   (d) vowel ***=3/7*** (e) consonant ***=4/7***

2. A random letter is chosen from RHOMBUS
   What is the probability of choosing:

   (a) R ***=1/7*** (b) U ***=1/7*** (c) T ***=0***

   (d) vowel ***=2/7*** (e) consonant ***=5/7***

3. A random letter is chosen from PARALLEL
   What is the probability of choosing:

   (a) P ***=1/8*** (b) A ***=1/4*** (c) P or A ***=3/8***

   (d) vowel ***=3/8*** (e) not a vowel ***=5/8***

   (f) vowel or consonant ***=1***

Colours

1. A bag contains four red balls, two green balls and one white ball (RRRR GG W).

   What is the probability of picking:

   (a) red ball ***4/7*** (b) white ***=1/7*** (c) green ***2/7***

   (d) ball which is *not* white ***6/7***

2. A bag contains three red balls, two green balls and four white balls.
   What is the probability of picking:

   (a) red ball ***1/3*** (b) white or green ***2/3***

   (c) ball which is not white ***5/9***

3. A bag contains four red balls, two green balls and four white balls.
   What is the probability of picking:

   (a) red ball ***2/5*** (b) white, yellow or red ***4/5***

   (c) ball which is *not* white ***3/5***

Colours extension

1. A bag contains three red balls, two green balls and four white balls. Two balls are picked out.
   What is the probability of picking:

   (a) A red ball on the first turn ***1/3***

   (b) A red ball on the second turn, if the first ball is red and is *not* replaced ***1/4***

   (c) A white ball on the first turn ***4/9***

   (d) A white ball on the second turn, if the first ball is white and is *not* replaced ***3/8***

   (e) A green ball on the first turn ***2/9***

   (f) A green ball on the second turn, if the first ball is red and is *not* replaced ***1/8***