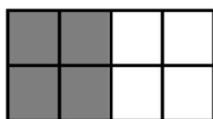


1.

In this rectangle there are 8 squares.



And 4 of them are shaded.



The fraction shaded is  $\frac{4}{8}$ . This is the same as  $\frac{1}{2}$ , because a half of the rectangle is shaded.

a)



How many squares are there in this rectangle?

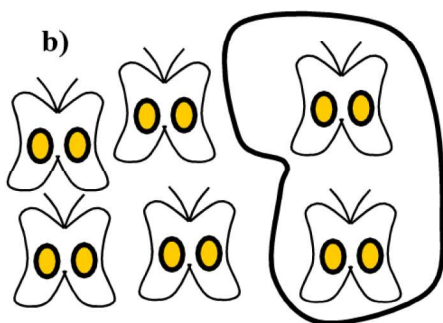
How many squares are shaded?

What fraction is shaded?

Which is this the same as:

$\frac{1}{4}$ ,  $\frac{1}{2}$  or  $\frac{2}{5}$ ?

b)



How many butterflies are there?

How many butterflies are ringed?

What fraction is ringed?

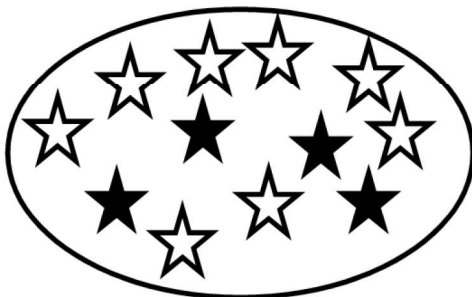
Which is this the same as:

$\frac{1}{3}$ ,  $\frac{1}{2}$  or  $\frac{1}{6}$ ?

I love butterflies!



1.



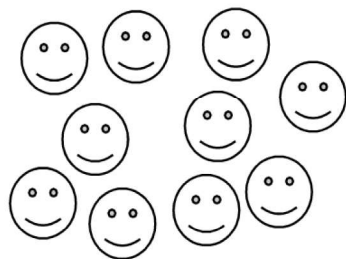
How many stars are there?

How many are shaded?

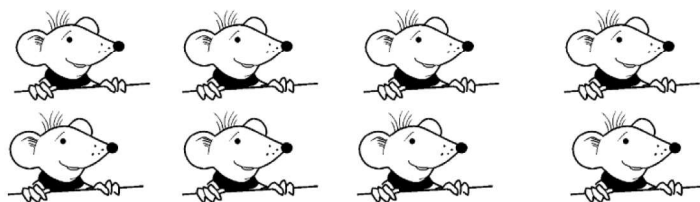
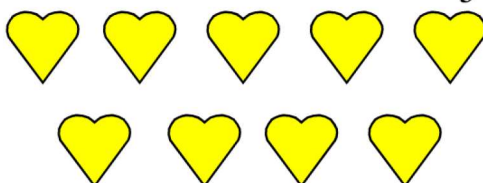
What fraction are shaded?

Can you make a simpler fraction from your answer?

2. Here are ten faces. Put a ring around a half of them.



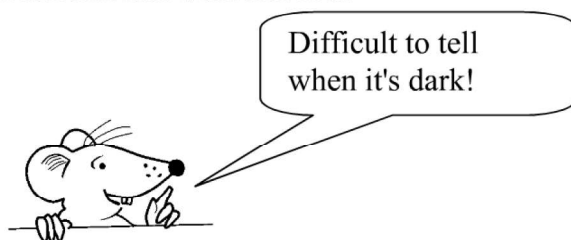
3. Here are 8 moons. Put a ring around a quarter of them.

4. Here are eight Multys. Put a ring around  $\frac{3}{4}$  of them.5. Here are nine hearts. Put a ring around  $\frac{2}{3}$  of them.

1. Draw six squares and shade  $\frac{1}{2}$  of them.
2. Draw **12** matchstick people and ring  $\frac{2}{3}$  of them.
3. Draw **20** triangles and ring  $\frac{1}{5}$  of them.

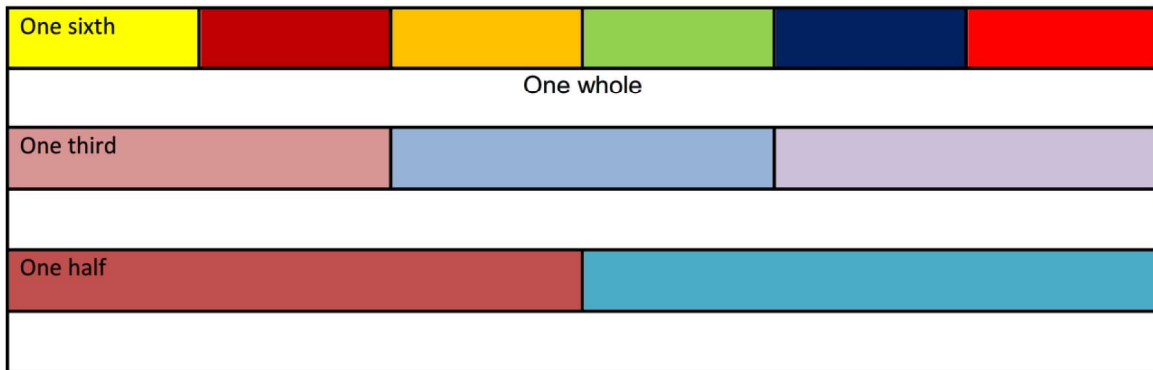
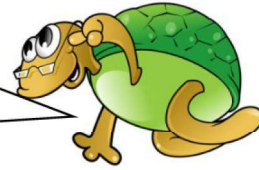
Why is  $\frac{1}{5}$  the same as  $\frac{4}{20}$  ?

4. In class 4A there are **20** pupils. **10** of them are girls.  
What fraction are girls?
5. In a group of **8** dogs, **3** are labradors. What fraction are labradors?
6. I have twenty coins in my pocket. Five are **50p** pieces.  
What fraction are **50p** pieces?
7. Jane had **30p**, but she spent **15p**.  
What fraction of her money did she spend?
8. Divvy had **6** cakes and ate **4** of them. What fraction did Divvy eat?
9. There were fifteen cars in a car park. Five were red.  
What fraction were red?  
What fraction were **not** red?



10. How many letters are there in this sentence?  
What fraction of these are 'a's'?
11. Sixteen Martians visit Earth. Twelve of them are green.  
What fraction are green?  
What fraction are **not** green?

Here is a long bar which has been divided into 6 equal parts. Each part is one sixth of the bar. I have then divided the same strip into three parts, or thirds and then into two parts, or halves.



Use the bars above to help to answer these questions:

1.  $\frac{1}{3} = \frac{2}{\boxed{6}}$

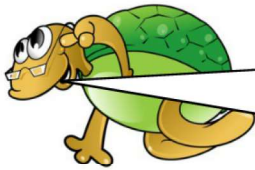
2.  $\frac{2}{3} = \frac{\boxed{4}}{6}$

3.  $\frac{1}{2} = \frac{\boxed{3}}{6}$

4. One whole one =  $\boxed{3}$  thirds

5. One whole one =  $\boxed{2}$  halves

6. One whole one =  $\boxed{6}$  sixths



Here is a long bar which has been divided into 12 equal parts. Each part is one twelfth of the bar. I have then divided the same bar into sixths, thirds, quarters and halves.

1/12	1/12	1/12	1/12	1/12	1/12	1/12	1/12	1/12	1/12	1/12	1/12
1/6		1/6		1/6		1/6		1/6		1/6	
1/3				1/3				1/3			
1/4			1/4			1/4			1/4		
1/2						1/2					

Use the bars above to help to answer these questions:

1.  $\frac{1}{3} = \frac{4}{12}$

2.  $\frac{4}{6} = \frac{8}{12}$

3.  $\frac{3}{4} = \frac{9}{12}$

4.  $\frac{6}{12} = \frac{2}{4}$

5.  $\frac{2}{3} = \frac{8}{12}$

6.  $\frac{3}{6} = \frac{2}{4}$

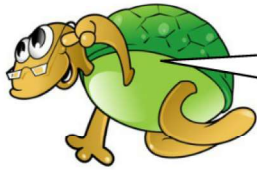
7. One whole one =  thirds

8. One whole one =  sixths

9. One whole one =  twelfths

10. One half =  twelfths

Name: \_\_\_\_\_



Use the chart to fill in the equivalent fractions below.

1/12	1/12	1/12	1/12	1/12	1/12	1/12	1/12	1/12	1/12	1/12	1/12	1/12
1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10
1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8
1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6
1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5
1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3
1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
one whole one												

Fraction	Equivalent fractions
$\frac{1}{2}$	
$\frac{1}{3}$	
$\frac{2}{3}$	
$\frac{1}{4}$	
$\frac{1}{5}$	
$\frac{2}{5}$	

Name:



Complete these equivalent fractions by putting in the correct denominators.

1.  $\frac{1}{2} = \frac{2}{\boxed{\phantom{00}}} = \frac{3}{\boxed{\phantom{00}}} = \frac{4}{\boxed{\phantom{00}}} = \frac{5}{\boxed{\phantom{00}}}$

2.  $\frac{1}{3} = \frac{2}{\boxed{\phantom{00}}} = \frac{3}{\boxed{\phantom{00}}} = \frac{5}{\boxed{\phantom{00}}} = \frac{10}{\boxed{\phantom{00}}}$

3.  $\frac{1}{4} = \frac{2}{\boxed{\phantom{00}}} = \frac{4}{\boxed{\phantom{00}}} = \frac{6}{\boxed{\phantom{00}}} = \frac{8}{\boxed{\phantom{00}}}$

4.  $\frac{1}{5} = \frac{3}{\boxed{\phantom{00}}} = \frac{5}{\boxed{\phantom{00}}} = \frac{7}{\boxed{\phantom{00}}} = \frac{9}{\boxed{\phantom{00}}}$

5.  $\frac{1}{6} = \frac{2}{\boxed{\phantom{00}}} = \frac{5}{\boxed{\phantom{00}}} = \frac{8}{\boxed{\phantom{00}}} = \frac{10}{\boxed{\phantom{00}}}$



Some more equivalent fractions to complete.

1.  $\frac{1}{7} = \frac{\underline{2}}{\square} = \frac{\underline{3}}{\square} = \frac{\underline{4}}{\square} = \frac{\underline{5}}{\square}$

2.  $\frac{1}{8} = \frac{\underline{2}}{\square} = \frac{\underline{4}}{\square} = \frac{\underline{7}}{\square} = \frac{\underline{8}}{\square}$

3.  $\frac{1}{9} = \frac{\underline{3}}{\square} = \frac{\underline{5}}{\square} = \frac{\underline{7}}{\square} = \frac{\underline{9}}{\square}$

4.  $\frac{1}{10} = \frac{\underline{4}}{\square} = \frac{\underline{6}}{\square} = \frac{\underline{8}}{\square} = \frac{\underline{10}}{\square}$

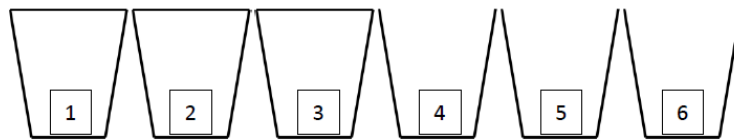
5.  $\frac{1}{11} = \frac{\underline{3}}{\square} = \frac{\underline{5}}{\square} = \frac{\underline{7}}{\square} = \frac{\underline{9}}{\square}$



## Puzzles

Show your working/explain your thinking.

1. Six buckets are placed in a row. The first 3 are full of water and the other 3 are empty. By moving only one bucket, how can you get an arrangement where it goes full, empty, full, empty, full empty?



2. 63 children are running in the sack race. The running track has 12 lanes. For health and safety reasons each runner has to have their own lane. It takes 6 minutes each time they race. How long will the event take?
3. There are 9 classes in the school. The choir will sing for 10 minutes. The brass and violin ensembles will need 7 minutes each. The concert is due to last for 2 hours, with a fifteen minute interval. Each class has to put on an act. How much time can they be given for each act?

# First Level 1 Basic Facts

Basic facts are maths problems that you must simply know 'off by heart' (in less than 4 seconds).

Add/subtract 0 with numbers to 10

$0 + 9$        $4 - 0$        $8 + 0$        $6 - 0$

$4 + 0$        $5 - 0$        $0 + 7$        $1 - 0$

Doubles to 10

$0 + 0$        $1 + 1$        $2 + 2$

$3 + 3$        $4 + 4$        $5 + 5$

Addition and Subtraction within 5

$1 + 4$        $5 - 2$        $3 + 2$        $3 - 2$

$5 - 4$        $2 + 1$        $4 - 2$        $1 + 3$

$4 - 3$        $1 + 2$        $3 - 1$

# First Level 2 Basic Facts

Basic facts are maths problems that you must simply know 'off by heart' (in less than 4 seconds).

## Make 10/100

$6 + \square = 10 \quad \square + 7 = 10 \quad 8 + \square = 10$

$30 + \square = 100 \quad 40 + \square = 100 \quad \square + 10 = 100$

## Addition and Subtraction within 10

$3 + 4 \quad 6 + 3 \quad 5 + 2 \quad 2 + 7$

$9 - 3 \quad 10 - 4 \quad 7 - 5 \quad 8 - 2$

## Teen Facts (10 add 0-9)

$10 + 8 \quad 5 + 10 \quad 2 + 10 \quad 10 + 7$

## Add and Subtract 1 with numbers within 20

$19 - 1 \quad 13 + 1 \quad 15 - 1 \quad 1 + 11$

## Doubles and halves within 20

$8 + 8 \quad \frac{1}{2} \text{ of } 12 \quad 9 + 9 \quad \text{half of } 14$

$6 + 6 \quad \text{half of } 20 \quad \text{double } 7$

## First Level 3 Basic Facts

Basic facts are maths problems that you must simply know 'off by heart' or in less than 4 seconds.

2, 5, 10 then 3 and 4 times tables and division

$2 \times 8 \quad 12 \div 2 \quad 5 \times 4 \quad 30 \div 5 \quad 10 \times 7$

$30 \div 10 \quad 3 \times 6 \quad 21 \div 3 \quad 9 \times 4 \quad 20 \div 4$

Addition and Subtraction within 20

$3 + 14 \quad 6 + 13 \quad 15 + 2 \quad 12 + 7$

$19 - 3 \quad 10 - 4 \quad 17 - 5 \quad 18 - 7$

Add and subtract whole tens and hundreds (no bridging)

$140 + 30 \quad 180 - 60 \quad 200 + 500 \quad 400 + 700$

Add and subtract 3 or 4 numbers within 20

$19 - 3 - 4 - 1 \quad 11 + 2 + 4 \quad 15 - 7 - 5 \quad 6 + 3 + 5 + 4$

Doubles and halves within 40

$18 + 18 \quad \frac{1}{2} \text{ of } 40 \quad 12 + 12 \quad \text{half of } 34$

$16 + 16 \quad \text{half of } 36 \quad \text{double } 15$

## Second Level 1 Basic Facts

Basic facts are maths problems that you must simply know 'off by heart' (in less than 4 seconds).

6, 7, 8 and 9 times tables and division

$7 \times 6$

$36 \div 6$

$3 \times 7$

$56 \div 7$

$8 \times 6$

$48 \div 8$

$6 \times 9$

$63 \div 9$

Add and subtract 2/3 digit numbers when one is a multiple of 10/100

$30 + 46$

$56 + 20$

$542 + 30$

$93 - 30$

$258 - 40$

$672 - 60$

$340 - 200$

$234 + 500$

$300 + 671$

Doubles of tens, hundreds and thousands

$80 + 80$

$300 + 300$

$2000 + 2000$

$7000 + 7000$

$600 + 600$

$90 + 90$

## Second Level 2 Basic Facts

Basic facts are maths problems that you must simply know 'off by heart' (in less than 4 seconds).

Multiply any single digit by a multiple of 10 or 100

$7 \times 80$

$40 \times 5$

$5 \times 70$

$90 \times 4$

$8 \times 600$

$3 \times 700$

$600 \times 9$

$60 \times 2$

Multiply and divide by 10, 100 or 1000 (no remainders)

$10 \times 46$

$500 \div 100$

$100 \times 37$

$300 \div 10$

$100 \times 40$

$9000 \div 1000$

$340 \times 10$

$23 \times 1000$

$1600 \div 100$

Divide a multiple of ten by a single digit

$180 \div 6$

$300 \div 3$

$490 \div 7$

$240 \div 8$

$360 \div 6$

$320 \div 4$

## Second Level 3 Basic Facts

Basic facts are maths problems that you must simply know 'off by heart' (in less than 4 seconds).

### Product (for all times tables)

What is the product of 8 and 4?

What is the product of 6 and 9?

### Multiples (for numbers 1-10)

The multiples of 3 are 6, 9, 12, 15, 18, 21 etc and I know them out of sequence as well.

The common multiples of 4 and 5 are 20, 40, 60, 80 etc

### Factors and Prime numbers

7 is a prime number because it is only divisible by itself and 1

The factors of 40 are 40, 1, 10, 4, 2, 20, 5 and 8

## First Level 1 – Black for practice (2 minutes)

<b>1.</b> $1 + 2 =$	<b>11.</b> $0 + 4 =$	<b>21.</b> $4 + 5 =$
<b>2.</b> $5 + 0 =$	<b>12.</b> $7 - 0 =$	<b>22.</b> $5 - 2 =$
<b>3.</b> $2 + 1 =$	<b>13.</b> $4 - 2 =$	<b>23.</b> $10 - 0 =$
<b>4.</b> $3 - 1 =$	<b>14.</b> $5 - 2 =$	<b>24.</b> $2 + 2 =$
<b>5.</b> $4 + 2 =$	<b>15.</b> $2 + 2 =$	<b>25.</b> $5 - 0 =$
<b>6.</b> $6 - 0 =$	<b>16.</b> $5 - 0 =$	<b>26.</b> $3 + 3 =$
<b>7.</b> double 3	<b>17.</b> $0 + 1 =$	<b>27.</b> $4 - 1 =$
<b>8.</b> $10 + 0 =$	<b>18.</b> $9 - 0 =$	<b>28.</b> $3 + 2 =$
<b>9.</b> $5 - 2 =$	<b>19.</b> $4 - 4 =$	<b>29.</b> $0 + 4 =$
<b>10.</b> $1 + 1 =$	<b>20.</b> $1 + 0 =$	<b>30.</b> $2 - 0 =$

**Total correct**

/30

My basic facts goal



## First Level 2 – Yellow for practice (2 minutes)

1. $7 + \square = 11$	11. $5 + 3 =$	21. $3 + 4 =$
2. $6 + 11 =$	12. $6 - 2 =$	22. $9 + 8 =$
3. $7 + 3 =$	13. $60 + 40 =$	23. $6 - 2 =$
4. half of 16 $\square$	14. $11 - 6 =$	24. $20 + 80 =$
5. $15 + 1 =$	15. $\frac{1}{2}$ of 14	25. half of 18 $\square$
6. $10 - 4 =$	16. $7 + 2 =$	26. $50 + \square = 100$
7. double 9 $\square$	17. $18 + 1 =$	27. $11 - 1 =$
8. $10 + 3 =$	18. $8 - 3 =$	28. $8 + 8 =$
9. $\square + 2 = 10$	19. $\quad + 8 = 10$	29. $10 + 5 =$
10. $1 + 17 =$	20. $1 + 10 =$	30. $3 + 7 =$

Total correct                      /30

My basic facts goal

## First Level 3 – Red for practice

(2 minutes)

<b>1.</b> $6+5+4 =$	<b>11.</b> $5 + 12 =$	<b>21.</b> $2 + 15 =$
<b>2.</b> $2 \times 4 =$	<b>12.</b> $18 - 6 =$	<b>22.</b> $17 - 7 =$
<b>3.</b> $15 + 3 =$	<b>13.</b> $140+30=$	<b>23.</b> $4 \times 3 =$
<b>4.</b> half of 30 <input type="text"/>	<b>14.</b> $14 \div 2 =$	<b>24.</b> $20 \div 5 =$
<b>5.</b> $3 \times 6 =$	<b>15.</b> $\frac{1}{2}$ of 28 <input type="text"/>	<b>25.</b> half of 36 <input type="text"/>
<b>6.</b> $12 \div 4 =$	<b>16.</b> $7 + 13 =$	<b>26.</b> $60+60 =$
<b>7.</b> double 16 <input type="text"/>	<b>17.</b> $170 - 40=$	<b>27.</b> $13 - 4 =$
<b>8.</b> $90 \div 10=$	<b>18.</b> $10 \times 6 =$	<b>28.</b> $30 \div 5 =$
<b>9.</b> $300+600 =$	<b>19.</b> $13-4-5=$	<b>29.</b> $6 \times 5 =$
<b>10.</b> $17 - 8=$	<b>20.</b> $18 \div 3 =$	<b>30.</b> $3+4+6+7 =$

**Total correct**

/30

My basic facts goal

## Second Level 1 – Blue for practice (2 minutes)

<b>1.</b> $6 \times 7 =$	<b>11.</b> $40 + 52 =$	<b>21.</b> $48 \div 8 =$
<b>2.</b> $300 + 300 =$	<b>12.</b> $4000 + 5000 =$	<b>22.</b> $8 \times 9 =$
<b>3.</b> $63 \div 9 =$	<b>13.</b> $70 + 70 =$	<b>23.</b> $632 - 500 =$
<b>4.</b> $757 - 30 =$	<b>14.</b> $715 - 600 =$	<b>24.</b> $60 + 28 =$
<b>5.</b> $7 \times 8 =$	<b>15.</b> $72 \div 9 =$	<b>25.</b> $600 + 600 =$
<b>6.</b> $475 + 300 =$	<b>16.</b> $200 + 300 =$	<b>26.</b> $7 \times 4 =$
<b>7.</b> $32 \div 8 =$	<b>17.</b> $7 \times 5 =$	<b>27.</b> $24 \div 4 =$
<b>8.</b> $7000 + 7000 =$	<b>18.</b> $29 + 50 =$	<b>28.</b> $90 + 90 =$
<b>9.</b> $7 \times 7 =$	<b>19.</b> $49 \div 7 =$	<b>29.</b> $361 + 400 =$
<b>10.</b> $42 \div 6 =$	<b>20.</b> $83 - 40 =$	<b>30.</b> $3 \times 7 =$

**Total correct**                      /30

My basic facts goal

## **Second Level 2 – Green for practice** (2 minutes)

<b>1.</b> $40 \times 3 =$	<b>11.</b> $9000 \div 1000 =$	<b>21.</b> $70 \times 6 =$
<b>2.</b> $5430 \div 10 =$	<b>12.</b> $100 \times 32 =$	<b>22.</b> $4 \times 700 =$
<b>3.</b> $67 \times 100 =$	<b>13.</b> $350 \div 5 =$	<b>23.</b> $4800 \div 100 =$
<b>4.</b> $400 \div 8 =$	<b>14.</b> $600 \times 7 =$	<b>24.</b> $1000 \times 68 =$
<b>5.</b> $200 \times 6 =$	<b>15.</b> $270 \div 9 =$	<b>25.</b> $280 \div 7 =$
<b>6.</b> $720 \div 9 =$	<b>16.</b> $675 \times 10 =$	<b>26.</b> $100 \times 5 =$
<b>7.</b> $60 \times 5 =$	<b>17.</b> $4 \times 70 =$	<b>27.</b> $3900 \div 100 =$
<b>8.</b> $190 \div 10 =$	<b>18.</b> $600 \div 10 =$	<b>28.</b> $10 \times 48 =$
<b>9.</b> $32000 \div 1000 =$	<b>19.</b> $360 \div 6 =$	<b>29.</b> $9 \times 80 =$
<b>10.</b> $10 \times 340 =$	<b>20.</b> $53 \times 100 =$	<b>30.</b> $210 \div 3 =$

**Total correct**                      /30

My basic facts goal

## Second Level 3 – Purple for practice (2 minutes)

1.	What is the product of 5 and 6?	
2.	The first 4 multiples of 7 are	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
3.	Name 2 prime numbers	<input type="text"/> <input type="text"/>
4.	What is the product of 9 and 4?	
5.	Name 3 factors of 28	<input type="text"/> <input type="text"/> <input type="text"/>
6.	Name 2 common multiples of 5 and 3	<input type="text"/> <input type="text"/>
7.	Circle all the multiples of 6	43, 12, 15, 42, 66, 74
8.	Name 3 Factors of 40	<input type="text"/> <input type="text"/> <input type="text"/>
9.	Circle 3 prime numbers	49, 43, 9, 7, 31, 32
10.	Circle all the multiples of 3	60, 33, 45, 18, 16, 39
11.	Name 2 common multiples of 3 and 4	<input type="text"/> <input type="text"/>

**Total correct**      /30

**My basic facts goal**

**Answers****Page 1**

1. a) 10 squares, 5 shaded,  $\frac{5}{10}$  shaded, same as  $\frac{1}{2}$   
 b) 6 butterflies, 2 ringed,  $\frac{2}{6}$  ringed, same as  $\frac{1}{3}$

**Page 2**

1. 12 stars, 4 black,  $\frac{4}{12}$  black, same as  $\frac{1}{3}$  or  $\frac{2}{6}$
2. Any 5 ringed
3. Any 2 ringed
4. Any six ringed
5. Any six ringed.

**Page 3**

1. Child draws six squares and shades three of them.
2. Child draws twelve people and rings eight of them.
3. Child draws twenty triangles and rings four of them. Same because selecting four from twenty is the same as grouping in fours and choosing one of the five groups.
4.  $\frac{10}{20}$  or  $\frac{1}{2}$
5.  $\frac{3}{8}$
6.  $\frac{5}{20}$  or  $\frac{1}{4}$
7.  $\frac{15}{30}$  or  $\frac{1}{2}$
8.  $\frac{4}{6}$  or  $\frac{2}{3}$
9. Red  $\frac{5}{15}$  or  $\frac{1}{3}$  Not red  $\frac{10}{15}$  or  $\frac{2}{3}$
10. 36 letters.  $\frac{2}{36}$  or  $\frac{1}{18}$  are 'a'.
11. Green  $\frac{12}{16}$  or  $\frac{3}{4}$  Not green  $\frac{4}{16}$  or  $\frac{1}{4}$



Answers

Page 1

1.  $\frac{2}{6}$     2.  $\frac{4}{6}$     3.  $\frac{3}{6}$     4. 3    5. 2    6. 6

Page 2

1.  $\frac{4}{12}$     2.  $\frac{8}{12}$     3.  $\frac{9}{12}$     4.  $\frac{2}{4}$     5.  $\frac{8}{12}$     6.  $\frac{2}{4}$

7. 3    8. 6    9. 12    10. 6

Page 3

$\frac{1}{2}$      $\frac{2}{4}$      $\frac{3}{6}$      $\frac{4}{8}$      $\frac{5}{10}$      $\frac{6}{12}$

$\frac{1}{3}$      $\frac{2}{6}$      $\frac{4}{12}$

$\frac{2}{3}$      $\frac{4}{6}$      $\frac{8}{12}$

$\frac{1}{4}$      $\frac{2}{8}$      $\frac{3}{12}$

$\frac{1}{5}$      $\frac{2}{10}$

$\frac{2}{5}$      $\frac{4}{10}$



## Answers

### Page 1

1.  $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10}$
2.  $\frac{1}{3} = \frac{2}{6} = \frac{3}{9} = \frac{5}{15} = \frac{10}{30}$
3.  $\frac{1}{4} = \frac{2}{8} = \frac{4}{16} = \frac{6}{24} = \frac{8}{32}$
4.  $\frac{1}{5} = \frac{3}{15} = \frac{5}{25} = \frac{7}{35} = \frac{9}{45}$
5.  $\frac{1}{6} = \frac{2}{12} = \frac{5}{30} = \frac{8}{48} = \frac{10}{60}$

### Page 2

1.  $\frac{1}{7} = \frac{2}{14} = \frac{3}{21} = \frac{4}{28} = \frac{5}{35}$
2.  $\frac{1}{8} = \frac{2}{16} = \frac{4}{32} = \frac{7}{56} = \frac{8}{64}$
3.  $\frac{1}{9} = \frac{3}{27} = \frac{5}{45} = \frac{7}{63} = \frac{9}{81}$
4.  $\frac{1}{10} = \frac{4}{40} = \frac{6}{60} = \frac{8}{80} = \frac{10}{100}$
5.  $\frac{1}{11} = \frac{3}{33} = \frac{5}{55} = \frac{7}{77} = \frac{9}{99}$



## Numeracy puzzles to make you think - answers

1. You tip the contents of bucket 2 into bucket 5.
2. 36 minutes

What information do you have? - 63 children, 12 lanes, 6 minutes per race and only one child per lane.

To find how many races do you need to run, divide 63 by 12. This gives you 5 remainder 3, so you need to run six races in total - five races with all 12 lanes full and a sixth race with only three children running. If each race takes 6 minutes, that's  $6 \times 6$  minutes = 36 minutes.

3. Nine minutes per class.

What information do you have? - The concert is to be 2 hours. You know the choir need 10 minutes, the brass ensemble need 7 minutes and the violin ensemble also need 7 minutes - (watch for the fact they need 7 minutes each!) Plus there is to be a 15 minute interval. You have 9 classes who also need time each.

Add up the time you know about -  $10 \text{ mins} + 7 \text{ mins} + 7 \text{ mins} + 15 \text{ mins} = 39$  minutes.

Take that away from 2 hours (120 minutes) -  $120 - 39 = 81$  minutes left between 9 classes is 9 minutes each.