# Appendix

Name: _____     Age: _____

**1)** Below are some definitions of the equals sign. How clever is each definition? For each one circle "very clever", "sort of clever or "not so clever".

a)      = means the same as.
*very clever*              *sort of clever*              *not so clever*

b)      = means add.
*very clever*              *sort of clever*              *not so clever*

c)      = means the answer to the problem.
*very clever*              *sort of clever*              *not so clever*

d)      = means the two sides can be swapped.
*very clever*              *sort of clever*              *not so clever*

**2)** Which of the definitions above is the best definition of the equals sign?

Write a, b, c or d in the box below.

**3)** For each example, decide if the number sentence is true. Then explain how you know.

a)  17 = 3 + 24             True     False     Don't Know
Explain how you know.

b)  35 = 35                 True     False     Don't Know
Explain how you know.

**4)** Find a number that can go in each box.

$8 + 12 + \boxed{\phantom{00}} = 20 + \boxed{\phantom{00}}$

Could another number go in the boxes?          Yes     No
Explain why or why not.

**5)** 17 + 12 = 29 is true.
Is 17 + 12 + 8 = 29 + 8 true or false?          True     False
How do you know?

**6)** What is the value of $x$ if $2x + 3 = 11$?　　　　$x =$ ☐
You can use the box below for your working.

**7)** What is the value of $y$ if $5y + 3 = y + 15$?　　　$y =$ ☐
You can use the box below for your working.

**8)** What are the values of $x$ and $y$ if
$x + y = 9$　and　$2x + 3y = 23$?　　$x =$ ☐　$y =$ ☐
You can use the box below for your working.

**9)** What are the values of $x$ and $y$ if
$3x + 8y = 84$ and $8x + 3y = 59$?　　$x =$ ☐　$y =$ ☐
You can use the box below for your working.

**10)** If $e + f = 8$　then　$e + f + g =$ ☐

**11)** When are the following true?
For each one circle "always", "never", or "sometimes".
If the answer is "sometimes", explain when.

a)　　$a + b + c = c + a + b$

*always*　　　　*never*　　　　*sometimes, when* ........................

b)　　$x + y + z = x + w + z$

*always*　　　　*never*　　　　*sometimes, when* ........................

c)　　$l + m = l + r + s$

*always*　　　　*never*　　　　*sometimes, when* ........................

d)　　$e + f - 2g = e$

*always*　　　　*never*　　　　*sometimes, when* ........................