

Two-digit Addition.

1). $\begin{array}{r} 14 \\ 23 \\ \hline \end{array} +$

13). $\begin{array}{r} 54 \\ 33 \\ \hline \end{array} +$

25). $\begin{array}{r} 54 \\ 26 \\ \hline \end{array} +$

37). $\begin{array}{r} 45 \\ 67 \\ \hline \end{array} +$

49). $\begin{array}{r} 78 \\ 88 \\ \hline \end{array} +$

2). $\begin{array}{r} 25 \\ 12 \\ \hline \end{array} +$

14). $\begin{array}{r} 62 \\ 36 \\ \hline \end{array} +$

26). $\begin{array}{r} 39 \\ 47 \\ \hline \end{array} +$

38). $\begin{array}{r} 78 \\ 67 \\ \hline \end{array} +$

50). $\begin{array}{r} 65 \\ 98 \\ \hline \end{array} +$

3). $\begin{array}{r} 21 \\ 37 \\ \hline \end{array} +$

15). $\begin{array}{r} 67 \\ 20 \\ \hline \end{array} +$

27). $\begin{array}{r} 26 \\ 37 \\ \hline \end{array} +$

39). $\begin{array}{r} 33 \\ 87 \\ \hline \end{array} +$

51). $\begin{array}{r} 67 \\ 96 \\ \hline \end{array} +$

4). $\begin{array}{r} 33 \\ 15 \\ \hline \end{array} +$

16). $\begin{array}{r} 40 \\ 30 \\ \hline \end{array} +$

28). $\begin{array}{r} 46 \\ 46 \\ \hline \end{array} +$

40). $\begin{array}{r} 89 \\ 76 \\ \hline \end{array} +$

52). $\begin{array}{r} 98 \\ 53 \\ \hline \end{array} +$

5). $\begin{array}{r} 26 \\ 22 \\ \hline \end{array} +$

17). $\begin{array}{r} 86 \\ 13 \\ \hline \end{array} +$

29). $\begin{array}{r} 17 \\ 55 \\ \hline \end{array} +$

41). $\begin{array}{r} 34 \\ 52 \\ \hline \end{array} +$

53). $\begin{array}{r} 47 \\ 83 \\ \hline \end{array} +$

6). $\begin{array}{r} 34 \\ 23 \\ \hline \end{array} +$

18). $\begin{array}{r} 73 \\ 24 \\ \hline \end{array} +$

30). $\begin{array}{r} 43 \\ 28 \\ \hline \end{array} +$

42). $\begin{array}{r} 74 \\ 65 \\ \hline \end{array} +$

54). $\begin{array}{r} 87 \\ 92 \\ \hline \end{array} +$

7). $\begin{array}{r} 18 \\ 41 \\ \hline \end{array} +$

19). $\begin{array}{r} 67 \\ 41 \\ \hline \end{array} +$

31). $\begin{array}{r} 58 \\ 18 \\ \hline \end{array} +$

43). $\begin{array}{r} 36 \\ 55 \\ \hline \end{array} +$

55). $\begin{array}{r} 74 \\ 88 \\ \hline \end{array} +$

8). $\begin{array}{r} 27 \\ 32 \\ \hline \end{array} +$

20). $\begin{array}{r} 56 \\ 73 \\ \hline \end{array} +$

32). $\begin{array}{r} 71 \\ 19 \\ \hline \end{array} +$

44). $\begin{array}{r} 86 \\ 17 \\ \hline \end{array} +$

56). $\begin{array}{r} 68 \\ 94 \\ \hline \end{array} +$

9). $\begin{array}{r} 20 \\ 39 \\ \hline \end{array} +$

21). $\begin{array}{r} 25 \\ 36 \\ \hline \end{array} +$

33). $\begin{array}{r} 42 \\ 29 \\ \hline \end{array} +$

45). $\begin{array}{r} 13 \\ 94 \\ \hline \end{array} +$

57). $\begin{array}{r} 97 \\ 85 \\ \hline \end{array} +$

10). $\begin{array}{r} 28 \\ 31 \\ \hline \end{array} +$

22). $\begin{array}{r} 17 \\ 35 \\ \hline \end{array} +$

34). $\begin{array}{r} 67 \\ 13 \\ \hline \end{array} +$

46). $\begin{array}{r} 27 \\ 93 \\ \hline \end{array} +$

58). $\begin{array}{r} 69 \\ 78 \\ \hline \end{array} +$

11). $\begin{array}{r} 17 \\ 52 \\ \hline \end{array} +$

23). $\begin{array}{r} 29 \\ 34 \\ \hline \end{array} +$

35). $\begin{array}{r} 29 \\ 49 \\ \hline \end{array} +$

47). $\begin{array}{r} 37 \\ 57 \\ \hline \end{array} +$

59). $\begin{array}{r} 77 \\ 83 \\ \hline \end{array} +$

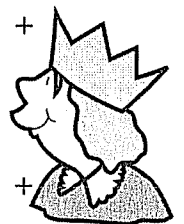
12). $\begin{array}{r} 45 \\ 34 \\ \hline \end{array} +$

24). $\begin{array}{r} 33 \\ 28 \\ \hline \end{array} +$

36). $\begin{array}{r} 58 \\ 35 \\ \hline \end{array} +$

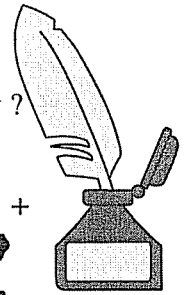
48). $\begin{array}{r} 89 \\ 31 \\ \hline \end{array} +$

60). $\begin{array}{r} 97 \\ 96 \\ \hline \end{array} +$



Ink Blots (2-digit addition).

Sally has spilt some ink over her homework. Can you help her write it out correctly ?



1). $\begin{array}{r} 13 \\ + 27 \\ \hline \end{array}$

13). $\begin{array}{r} 33 \\ + 97 \\ \hline \end{array}$

25). $\begin{array}{r} 26 \\ + 70 \\ \hline \end{array}$

37). $\begin{array}{r} 46 \\ + 113 \\ \hline \end{array}$

49). $\begin{array}{r} 68 \\ + 88 \\ \hline \end{array}$

2). $\begin{array}{r} 22 \\ + 35 \\ \hline \end{array}$

14). $\begin{array}{r} 52 \\ + 38 \\ \hline \end{array}$

26). $\begin{array}{r} 29 \\ + 43 \\ \hline \end{array}$

38). $\begin{array}{r} 77 \\ + 50 \\ \hline 134 \end{array}$

50). $\begin{array}{r} 50 \\ + 98 \\ \hline 5 \end{array}$

3). $\begin{array}{r} 21 \\ + 17 \\ \hline 37 \end{array}$

15). $\begin{array}{r} 77 \\ + 20 \\ \hline 67 \end{array}$

27). $\begin{array}{r} 20 \\ + 77 \\ \hline 43 \end{array}$

39). $\begin{array}{r} 40 \\ + 87 \\ \hline 80 \end{array}$

51). $\begin{array}{r} 77 \\ + 90 \\ \hline 168 \end{array}$

4). $\begin{array}{r} 33 \\ + 10 \\ \hline 24 \end{array}$

16). $\begin{array}{r} 50 \\ + 90 \\ \hline 0 \end{array}$

28). $\begin{array}{r} 30 \\ + 36 \\ \hline 2 \end{array}$

40). $\begin{array}{r} 80 \\ + 78 \\ \hline 7 \end{array}$

52). $\begin{array}{r} 90 \\ + 93 \\ \hline 181 \end{array}$

5). $\begin{array}{r} 22 \\ + 22 \\ \hline 45 \end{array}$

17). $\begin{array}{r} 66 \\ + 90 \\ \hline 39 \end{array}$

29). $\begin{array}{r} 77 \\ + 60 \\ \hline 82 \end{array}$

41). $\begin{array}{r} 44 \\ + 44 \\ \hline 96 \end{array}$

53). $\begin{array}{r} 93 \\ + 47 \\ \hline 140 \end{array}$

6). $\begin{array}{r} 14 \\ + 34 \\ \hline 48 \end{array}$

18). $\begin{array}{r} 63 \\ + 84 \\ \hline \end{array}$

30). $\begin{array}{r} 53 \\ + 28 \\ \hline 81 \end{array}$

42). $\begin{array}{r} 77 \\ + 15 \\ \hline \end{array}$

54). $\begin{array}{r} 80 \\ + 99 \\ \hline 6 \end{array}$

7). $\begin{array}{r} 18 \\ + 31 \\ \hline 49 \end{array}$

19). $\begin{array}{r} 51 \\ + 67 \\ \hline 118 \end{array}$

31). $\begin{array}{r} 58 \\ + 28 \\ \hline 8 \end{array}$

43). $\begin{array}{r} 55 \\ + 67 \\ \hline 121 \end{array}$

55). $\begin{array}{r} 74 \\ + 85 \\ \hline \end{array}$

8). $\begin{array}{r} 27 \\ + 12 \\ \hline 39 \end{array}$

20). $\begin{array}{r} 66 \\ + 70 \\ \hline 109 \end{array}$

32). $\begin{array}{r} 30 \\ + 49 \\ \hline 0 \end{array}$

44). $\begin{array}{r} 50 \\ + 39 \\ \hline 3 \end{array}$

56). $\begin{array}{r} 80 \\ + 90 \\ \hline 172 \end{array}$

9). $\begin{array}{r} 40 \\ + 19 \\ \hline 5 \end{array}$

21). $\begin{array}{r} 45 \\ + 20 \\ \hline 41 \end{array}$

33). $\begin{array}{r} 56 \\ + 29 \\ \hline 8 \end{array}$

45). $\begin{array}{r} 30 \\ + 94 \\ \hline 27 \end{array}$

57). $\begin{array}{r} 77 \\ + 88 \\ \hline 18 \end{array}$

10). $\begin{array}{r} 26 \\ + 31 \\ \hline 5 \end{array}$

22). $\begin{array}{r} 10 \\ + 15 \\ \hline 42 \end{array}$

34). $\begin{array}{r} 47 \\ + 23 \\ \hline \end{array}$

46). $\begin{array}{r} 16 \\ + 30 \\ \hline 10 \end{array}$

58). $\begin{array}{r} 79 \\ + 78 \\ \hline \end{array}$

11). $\begin{array}{r} 20 \\ + 49 \\ \hline 69 \end{array}$

23). $\begin{array}{r} 20 \\ + 24 \\ \hline 3 \end{array}$

35). $\begin{array}{r} 40 \\ + 49 \\ \hline 8 \end{array}$

47). $\begin{array}{r} 37 \\ + 47 \\ \hline 84 \end{array}$

59). $\begin{array}{r} 90 \\ + 93 \\ \hline 160 \end{array}$

12). $\begin{array}{r} 43 \\ + 34 \\ \hline \end{array}$

24). $\begin{array}{r} 33 \\ + 18 \\ \hline 51 \end{array}$

36). $\begin{array}{r} 48 \\ + 29 \\ \hline 12 \end{array}$

48). $\begin{array}{r} 60 \\ + 31 \\ \hline 90 \end{array}$

60). $\begin{array}{r} 90 \\ + 28 \\ \hline 193 \end{array}$



Two-digit Subtraction.



$$\begin{array}{r} 1). \quad 25 \\ \quad \underline{12} \\ \hline \end{array}$$

$$\begin{array}{r} 2). \quad 29 \\ \quad \underline{13} \\ \hline \end{array}$$

$$\begin{array}{r} 3). \quad 36 \\ \quad \underline{14} \\ \hline \end{array}$$

$$\begin{array}{r} 4). \quad 33 \\ \quad \underline{11} \\ \hline \end{array}$$

$$\begin{array}{r} 5). \quad 26 \\ \quad \underline{4} \\ \hline \end{array}$$

$$\begin{array}{r} 6). \quad 34 \\ \quad \underline{23} \\ \hline \end{array}$$

$$\begin{array}{r} 7). \quad 18 \\ \quad \underline{6} \\ \hline \end{array}$$

$$\begin{array}{r} 8). \quad 47 \\ \quad \underline{22} \\ \hline \end{array}$$

$$\begin{array}{r} 9). \quad 50 \\ \quad \underline{20} \\ \hline \end{array}$$

$$\begin{array}{r} 10). \quad 58 \\ \quad \underline{21} \\ \hline \end{array}$$

$$\begin{array}{r} 11). \quad 64 \\ \quad \underline{32} \\ \hline \end{array}$$

$$\begin{array}{r} 12). \quad 45 \\ \quad \underline{34} \\ \hline \end{array}$$

$$\begin{array}{r} 13). \quad 54 \\ \quad \underline{34} \\ \hline \end{array}$$

$$\begin{array}{r} 14). \quad 62 \\ \quad \underline{31} \\ \hline \end{array}$$

$$\begin{array}{r} 15). \quad 67 \\ \quad \underline{20} \\ \hline \end{array}$$

$$\begin{array}{r} 16). \quad 49 \\ \quad \underline{37} \\ \hline \end{array}$$

$$\begin{array}{r} 17). \quad 88 \\ \quad \underline{15} \\ \hline \end{array}$$

$$\begin{array}{r} 18). \quad 77 \\ \quad \underline{34} \\ \hline \end{array}$$

$$\begin{array}{r} 19). \quad 67 \\ \quad \underline{41} \\ \hline \end{array}$$

$$\begin{array}{r} 20). \quad 96 \\ \quad \underline{53} \\ \hline \end{array}$$

$$\begin{array}{r} 21). \quad 25 \\ \quad \underline{16} \\ \hline \end{array}$$

$$\begin{array}{r} 22). \quad 27 \\ \quad \underline{18} \\ \hline \end{array}$$

$$\begin{array}{r} 23). \quad 21 \\ \quad \underline{13} \\ \hline \end{array}$$

$$\begin{array}{r} 24). \quad 35 \\ \quad \underline{18} \\ \hline \end{array}$$

$$\begin{array}{r} 25). \quad 54 \\ \quad \underline{26} \\ \hline \end{array}$$

$$\begin{array}{r} 26). \quad 32 \\ \quad \underline{24} \\ \hline \end{array}$$

$$\begin{array}{r} 27). \quad 56 \\ \quad \underline{39} \\ \hline \end{array}$$

$$\begin{array}{r} 28). \quad 76 \\ \quad \underline{38} \\ \hline \end{array}$$

$$\begin{array}{r} 29). \quad 83 \\ \quad \underline{36} \\ \hline \end{array}$$

$$\begin{array}{r} 30). \quad 43 \\ \quad \underline{18} \\ \hline \end{array}$$

$$\begin{array}{r} 31). \quad 50 \\ \quad \underline{18} \\ \hline \end{array}$$

$$\begin{array}{r} 32). \quad 71 \\ \quad \underline{9} \\ \hline \end{array}$$

$$\begin{array}{r} 33). \quad 92 \\ \quad \underline{47} \\ \hline \end{array}$$

$$\begin{array}{r} 34). \quad 67 \\ \quad \underline{18} \\ \hline \end{array}$$

$$\begin{array}{r} 35). \quad 65 \\ \quad \underline{49} \\ \hline \end{array}$$

$$\begin{array}{r} 36). \quad 98 \\ \quad \underline{59} \\ \hline \end{array}$$

$$\begin{array}{r} 37). \quad 87 \\ \quad \underline{68} \\ \hline \end{array}$$

$$\begin{array}{r} 38). \quad 72 \\ \quad \underline{37} \\ \hline \end{array}$$

$$\begin{array}{r} 39). \quad 73 \\ \quad \underline{27} \\ \hline \end{array}$$

$$\begin{array}{r} 40). \quad 80 \\ \quad \underline{16} \\ \hline \end{array}$$

$$\begin{array}{r} 41). \quad 74 \\ \quad \underline{26} \\ \hline \end{array}$$

$$\begin{array}{r} 42). \quad 74 \\ \quad \underline{65} \\ \hline \end{array}$$

$$\begin{array}{r} 43). \quad 96 \\ \quad \underline{55} \\ \hline \end{array}$$

$$\begin{array}{r} 44). \quad 99 \\ \quad \underline{17} \\ \hline \end{array}$$

$$\begin{array}{r} 45). \quad 84 \\ \quad \underline{38} \\ \hline \end{array}$$

$$\begin{array}{r} 46). \quad 93 \\ \quad \underline{17} \\ \hline \end{array}$$

$$\begin{array}{r} 47). \quad 87 \\ \quad \underline{37} \\ \hline \end{array}$$

$$\begin{array}{r} 48). \quad 81 \\ \quad \underline{29} \\ \hline \end{array}$$

$$\begin{array}{r} 49). \quad 78 \\ \quad \underline{19} \\ \hline \end{array}$$

$$\begin{array}{r} 50). \quad 65 \\ \quad \underline{9} \\ \hline \end{array}$$

$$\begin{array}{r} 51). \quad 67 \\ \quad \underline{48} \\ \hline \end{array}$$

$$\begin{array}{r} 52). \quad 98 \\ \quad \underline{89} \\ \hline \end{array}$$

$$\begin{array}{r} 53). \quad 57 \\ \quad \underline{49} \\ \hline \end{array}$$

$$\begin{array}{r} 54). \quad 87 \\ \quad \underline{12} \\ \hline \end{array}$$

$$\begin{array}{r} 55). \quad 74 \\ \quad \underline{45} \\ \hline \end{array}$$

$$\begin{array}{r} 56). \quad 68 \\ \quad \underline{34} \\ \hline \end{array}$$

$$\begin{array}{r} 57). \quad 91 \\ \quad \underline{25} \\ \hline \end{array}$$

$$\begin{array}{r} 58). \quad 65 \\ \quad \underline{18} \\ \hline \end{array}$$

$$\begin{array}{r} 59). \quad 70 \\ \quad \underline{13} \\ \hline \end{array}$$

$$\begin{array}{r} 60). \quad 97 \\ \quad \underline{28} \\ \hline \end{array}$$



Ink Blots (2-digit Subtraction).

James has spilt some ink over his homework. Can you help him write it out correctly ?

1). 24

$$\begin{array}{r} 24 \\ - 12 \\ \hline \end{array}$$

13). 24

$$\begin{array}{r} 24 \\ - 50 \\ \hline \end{array}$$

25). 58

$$\begin{array}{r} 58 \\ - 29 \\ \hline \end{array}$$

37). 38

$$\begin{array}{r} 38 \\ - 49 \\ \hline \end{array}$$

49). 58

$$\begin{array}{r} 58 \\ - 21 \\ \hline \end{array}$$

2). 29

$$\begin{array}{r} 29 \\ - 13 \\ \hline \end{array}$$

14). 32

$$\begin{array}{r} 32 \\ - 20 \\ \hline \end{array}$$

26). 33

$$\begin{array}{r} 33 \\ - 27 \\ \hline \end{array}$$

38). 76

$$\begin{array}{r} 76 \\ - 46 \\ \hline \end{array}$$

50). 75

$$\begin{array}{r} 75 \\ - 66 \\ \hline \end{array}$$

3). 37

$$\begin{array}{r} 37 \\ - 21 \\ \hline \end{array}$$

15). 50

$$\begin{array}{r} 50 \\ - 27 \\ \hline \end{array}$$

27). 32

$$\begin{array}{r} 32 \\ - 15 \\ \hline \end{array}$$

39). 27

$$\begin{array}{r} 27 \\ - 48 \\ \hline \end{array}$$

51). 78

$$\begin{array}{r} 78 \\ - 49 \\ \hline \end{array}$$

4). 7

$$\begin{array}{r} 7 \\ - 23 \\ \hline \end{array}$$

16). 48

$$\begin{array}{r} 48 \\ - 27 \\ \hline \end{array}$$

28). 43

$$\begin{array}{r} 43 \\ - 38 \\ \hline \end{array}$$

40). 10

$$\begin{array}{r} 10 \\ - 13 \\ \hline \end{array}$$

52). 97

$$\begin{array}{r} 97 \\ - 78 \\ \hline \end{array}$$

5). 16

$$\begin{array}{r} 16 \\ - 13 \\ \hline \end{array}$$

17). 16

$$\begin{array}{r} 16 \\ - 11 \\ \hline \end{array}$$

29). 39

$$\begin{array}{r} 39 \\ - 46 \\ \hline \end{array}$$

41). 62

$$\begin{array}{r} 62 \\ - 29 \\ \hline \end{array}$$

53). 68

$$\begin{array}{r} 68 \\ - 29 \\ \hline \end{array}$$

6). 24

$$\begin{array}{r} 24 \\ - 10 \\ \hline \end{array}$$

18). 79

$$\begin{array}{r} 79 \\ - 55 \\ \hline \end{array}$$

30). 42

$$\begin{array}{r} 42 \\ - 15 \\ \hline \end{array}$$

42). 74

$$\begin{array}{r} 74 \\ - 68 \\ \hline \end{array}$$

54). 77

$$\begin{array}{r} 77 \\ - 12 \\ \hline \end{array}$$

7). 15

$$\begin{array}{r} 15 \\ - 54 \\ \hline \end{array}$$

19). 31

$$\begin{array}{r} 31 \\ - 37 \\ \hline \end{array}$$

31). 67

$$\begin{array}{r} 67 \\ - 17 \\ \hline \end{array}$$

43). 95

$$\begin{array}{r} 95 \\ - 33 \\ \hline \end{array}$$

55). 73

$$\begin{array}{r} 73 \\ - 38 \\ \hline \end{array}$$

8). 42

$$\begin{array}{r} 42 \\ - 25 \\ \hline \end{array}$$

20). 94

$$\begin{array}{r} 94 \\ - 43 \\ \hline \end{array}$$

32). 73

$$\begin{array}{r} 73 \\ - 64 \\ \hline \end{array}$$

44). 15

$$\begin{array}{r} 15 \\ - 77 \\ \hline \end{array}$$

56). 84

$$\begin{array}{r} 84 \\ - 34 \\ \hline \end{array}$$

9). 60

$$\begin{array}{r} 60 \\ - 40 \\ \hline \end{array}$$

21). 23

$$\begin{array}{r} 23 \\ - 16 \\ \hline \end{array}$$

33). 92

$$\begin{array}{r} 92 \\ - 57 \\ \hline \end{array}$$

45). 84

$$\begin{array}{r} 84 \\ - 48 \\ \hline \end{array}$$

57). 92

$$\begin{array}{r} 92 \\ - 56 \\ \hline \end{array}$$

10). 18

$$\begin{array}{r} 18 \\ - 25 \\ \hline \end{array}$$

22). 22

$$\begin{array}{r} 22 \\ - 13 \\ \hline \end{array}$$

34). 17

$$\begin{array}{r} 17 \\ - 28 \\ \hline \end{array}$$

46). 92

$$\begin{array}{r} 92 \\ - 19 \\ \hline \end{array}$$

58). 68

$$\begin{array}{r} 68 \\ - 35 \\ \hline \end{array}$$

11). 54

$$\begin{array}{r} 54 \\ - 22 \\ \hline \end{array}$$

23). 13

$$\begin{array}{r} 13 \\ - 08 \\ \hline \end{array}$$

35). 66

$$\begin{array}{r} 66 \\ - 29 \\ \hline \end{array}$$

47). 67

$$\begin{array}{r} 67 \\ - 40 \\ \hline \end{array}$$

59). 14

$$\begin{array}{r} 14 \\ - 76 \\ \hline \end{array}$$

12). 65

$$\begin{array}{r} 65 \\ - 31 \\ \hline \end{array}$$

24). 16

$$\begin{array}{r} 16 \\ - 18 \\ \hline \end{array}$$

36). 91

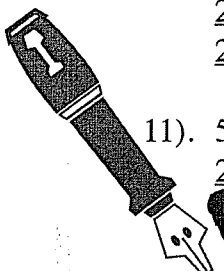
$$\begin{array}{r} 91 \\ - 39 \\ \hline \end{array}$$

48). 39

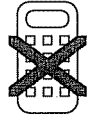
$$\begin{array}{r} 39 \\ - 52 \\ \hline \end{array}$$

60). 15

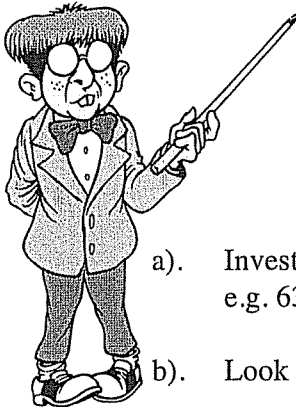
$$\begin{array}{r} 15 \\ - 57 \\ \hline \end{array}$$



Adding and Subtracting Investigations.



- 1). Take any two digits, reverse the digits. Put the bigger number first and find the difference. Continue this process with the answer until you come to a single digit answer.



e.g. $73 - \begin{array}{r} 37 \\ \hline 36 \end{array}$ $63 - \begin{array}{r} 36 \\ \hline 27 \end{array}$ $72 - \begin{array}{r} 27 \\ \hline 45 \end{array}$ $54 - \begin{array}{r} 45 \\ \hline 09 \end{array}$

This chain is $36 \rightarrow 27 \rightarrow 45 \rightarrow 9$.

- a). Investigate numbers that have a difference of three between their digits
e.g. 63, 52, 74 and 85.
- b). Look at other numbers with the same difference between their digits.

- 2). Choose any 2 numbers, e.g. 28 and 8. Find the difference i.e. 20.
This is the next number in the chain. The chain now is $28 \rightarrow 8 \rightarrow 20$.
Now find the difference between 20 and 8 i.e. 12.
The chain is now. $28 \rightarrow 8 \rightarrow 20 \rightarrow 12$.
To carry on the chain find the difference of the last two numbers.
Stop when the last 2 numbers are the same.
Finish off this chain. Try other numbers.



- 3). Digital roots. To find a digital root we add up all the digits. If the answer is more than one digit long we add up these new digits. Keep repeating this until we get a single digit answer.
E.g. To find the digital root of 4306, $4 + 3 + 0 + 6 = 13$, $1 + 3 = 4$.
Therefore 4 is the digital root of 4306.

- a). i). Find all the digital roots of the even numbers up to 40.
ii). Find all the digital roots of the odd numbers up to 41.
iii). What pattern do you notice ?

- b). Look at the digital roots of
i). the 3 times tables. What pattern do you notice ?
ii). the 9 times tables. What pattern do you notice ?
iii). Explore other time tables.

- 4). Choose any 4 digit number. Rearrange the digits so you make the highest and lowest numbers possible. Subtract the smaller one from the larger one.
With the 4 new digits in the answer, rearrange them to make the biggest and smallest number possible. Subtract them. Repeat this process. What happens ?

e.g. Number 5473 $7543 - \begin{array}{r} 3457 \\ \hline 4086 \end{array}$ $8640 - \begin{array}{r} 0468 \\ \hline 8172 \end{array}$ $8721 - \begin{array}{r} 1278 \\ \hline 7443 \end{array}$ $7443 - \begin{array}{r} 3447 \\ \hline 3996 \end{array}$

Try it with other sets of 4 digits.
What do you notice ?
What is the longest chain before nothing new occurs ?

Finish this off.

