5. [− Whole Numbers]

Skill 5.1   Understanding different terms used for subtraction.

- Consider the words used with the numbers.
  Subtraction is associated with words like: ***minus, difference, take away, subtract, less than, decreasing by, how many more.***

Q. The difference between
17 and 8 is

A. $17 - 8 = 9$

'difference between' means subtracting

a) 11 minus 3 equals   8

b) 14 minus 9 equals

c) The difference between
16 and 4 is

d) The difference between
16 and 10 is

e) The difference between
19 and 12 is

f) The difference between
31 and 29 is

g) 15 take away 4 equals

h) 26 take away 9 equals

i) 32 take away 6 equals

j) 22 minus 7 equals

k) 15 minus 8 equals

l) 120 minus 20 equals

m) 37 minus 12 equals

n) 16 subtract 8 makes

o) 23 subtract 9 makes

p) 15 subtract 8 makes

q) 31 subtract 7 makes

r) 23 subtract 6 makes

s) The difference between
17 and 4 is

t) 14 subtract 8 makes

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Skill 5.2   Subtracting the numbers from 1 to 10 by counting backwards, using your fingers or pencil marks.

- Start with the first number given.
- Count backwards the smaller number using your fingers or pencil marks.

Q.

9	6	8	12	10

– 5					

A.

9	6	8	12	10

– 5	*4*	*1*	*3*	*7*	*5*

9 counting back 5   9 counting back 5

OR

8, 7, 6, 5, 4
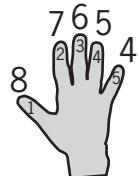
Start with the first number given, 9.
Count backwards 5.
$9 - 5 = 4$

12 counting back 3

a) $12 - 3 =$ | 9 |
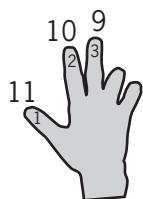
b) $14 - 9 =$ | | 14 counting back...

c) $21 - 7 =$ | |

d) $25 - 6 =$ | |

e) $32 - 5 =$ | |

f) $26 - 8 =$ | |

g)

8	10	7	11	12

– 3					

h)

10	3	5	9	6

– 2					

i)

7	10	12	9	11

– 4					

j)

18	22	7	14	30

– 5					

k)

13	25	27	18	16

– 7					

l)

16	15	24	13	21

– 9					

**Skill 5.3**   Subtracting the numbers from 1 to 10 by counting backwards on a number line.

• Mark the first number in the subtraction on the number line.
• Use your pencil to count backwards the second number.

Q.

| 19	25	16	18	23
– 8				

A.

19	25	16	18	23
– 8	*11*	*17*	*8*	*10*	*15*

– 8
count backwards 8

a) $12 - 7 = \boxed{}$

– 7

b) $17 - 8 = \boxed{}$

c) $24 - 9 = \boxed{}$

d) $21 - 5 = \boxed{}$

e)

12	3	9	6	7
– 2	**10**			

– 2
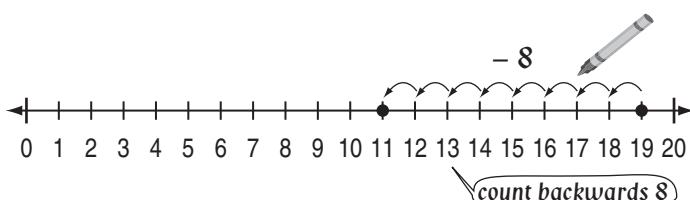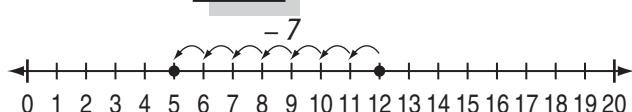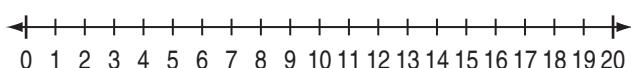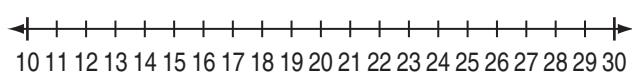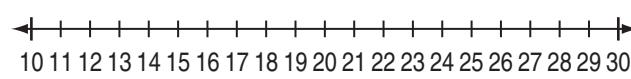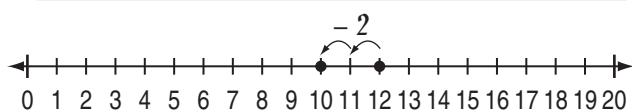
f)

12	9	8	13	10
– 6				
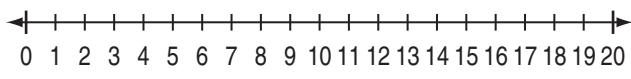
g)

11	14	13	9	16
– 8				
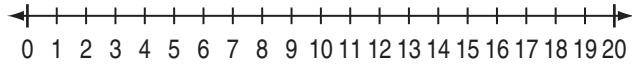
h)

19	31	15	20	12
– 7				
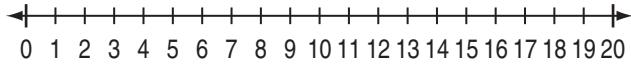
i)

27	14	19	22	18
– 5				

j)

15	17	24	29	26
– 9				

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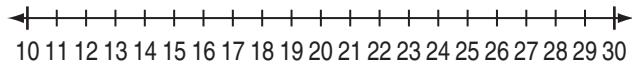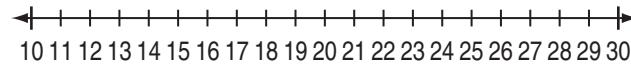
Skill 5.4   Subtracting the numbers from 1 to 10 from 2-digit numbers, by first moving backwards to the nearest 10.

MM2.2 1 **1** 2 **2** 3 3 **4** 4
MM3.1 **11** 2 2 3 **3** 4 4

- Look at the unit value of the two-digit number.
- Break down the single digit number to include this number and the remainder.
- Subtract the number from the two-digit number giving 10 (or the nearest multiple of 10) as the result.
- Then subtract the remainder from 10 (or 20, 30, 40 etc).

Q.

25	12	16	21	23
− 8				

A.

25	12	16	21	23
− 8	**17**	**4**	**8**	**13**	**15**

(break down the 8) — $25 - 8 =$

$= 25 - 5 - 3$

The unit value of 25 is 5.   You need a 5.
Breakdown 8 into 5 and 3.   5 + 3 = 8

(make 20) — $= 25 - 5 - 3$

$= 20 - 3$

$= 17$

Subtract 5 from 25 to get 20.
Subtract 3 from 20.

a) $12 - 6 =$

$= 12 - 2 - 4$

$= 12 - 2 - 4$

$= 10 - 4 =$ ☐ **6**

b) $27 - 8 =$

c) $25 - 9 =$

d) $22 - 8 =$

e) $31 - 5 =$

f) $25 - 7 =$

g)

11	14	17	15	12
− 8				

h)

12	14	23	25	21
− 7				

i)

23	15	12	20	17
− 9				

j)

| 15	22	23	21	14
− 6				

Skill 5.5   Subtracting the numbers from 1 to 10 from 2-digit numbers, by trading with base 10 blocks.

MM2.2 1 **1** 2 **2** 3 3 **4**
MM3.1 **1 1** 2 2 3 **3** 4 4

- Use blocks to represent the first number.
- Cross out a number of blocks equal to the second number.
- Count the remaining blocks to complete the subtraction.

Q. $13 - 8 =$ ☐

A. $13 - 8 =$ **5**

cross out 8 blocks   count 5 blocks

$13 - 8 = 5$
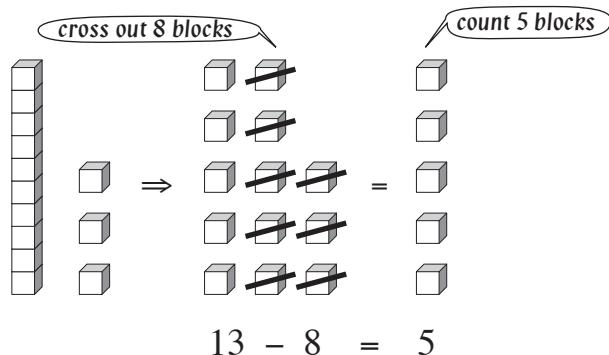
a) $13 - 7 =$ **6**
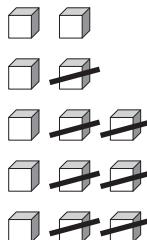
b) $25 - 6 =$ ☐
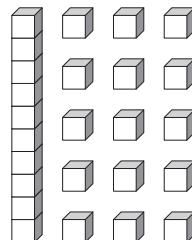
c)

9	11	7	10	5
− 3				

d)

10	8	12	9	14
− 5				

e)

6	12	4	8	5
− 4				

f)

13	17	25	31	12
− 9				

g)

22	15	17	28	10
− 8				

h)

23	21	19	8	14
− 6				

Subtracting the numbers from 1 to 10 by first building up to the nearest 10 on a number line.

MM2.2 1 **1 2** 2 3 3 4 **4**
MM3.1 **1 1** 2 2 **3** 4 4

- Mark the second number in the subtraction on the number line.
- Count forwards to the nearest 10, 20, 30 or 40 on the number line.
- Then count on to the first number on the number line.
- Add the total number of places you moved on the number line to complete the subtraction.

Q.

17	21	29	18	23
− 8				

A.

17	21	29	18	23
− 8	**9**	**13**	**21**	**10**	**15**

$17 − 8 = 9$

the second number

$+ 2$ $+ 7$

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
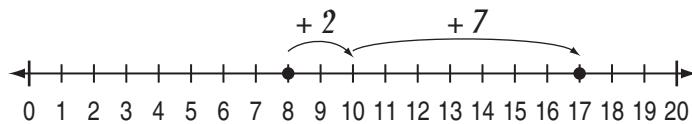
Start at 8.
Count forwards 2 places to 10.
Count on 7 places to 17.
2 + 7 = 9 places

a) $12 − 3 = \boxed{}$
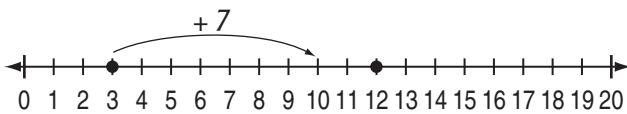
$+ 7$

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

b) $17 − 9 = \boxed{}$

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

c) $15 − 7 = \boxed{}$

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

d) $24 − 6 = \boxed{}$

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40

e)

14	12	7	9	16
− 6	8			

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

f)

9	5	13	8	11
− 4				

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

g)

17	24	19	23	20
− 7				

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

h)

| 25	19	20	22	26
− 8				

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
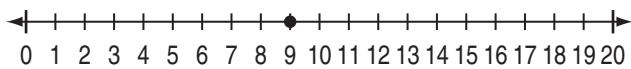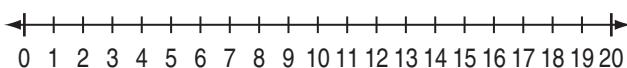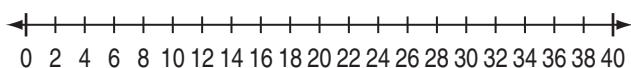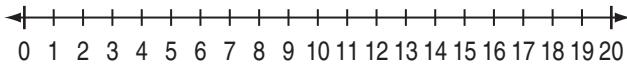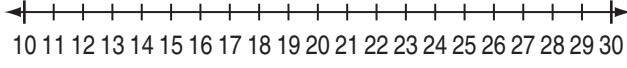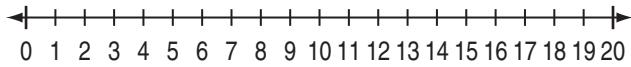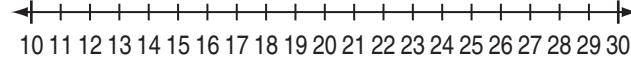
Skill 5.7   Subtracting two 2-digit numbers by separately subtracting the units and tens, and then adding the results.

- Subtract the tens.
- Subtract the units.
- Add the totals.

Q. 38 – 15 = ☐   **A.** $30 - 10 = 10$ — subtract the tens
$8 - 5 = 3$ — subtract the units
$10 + 3 = 13$

a) 46 – 22 =
$40 - 20 = 20$
$6 - 2 = 4$
$20 + 4 =$ ☐ **24**

b) 38 – 17 =
$30 - 10 =$
$8 - 7 =$
☐

c) 49 – 23 =
☐

d) 33 – 20 =
☐

e) 58 – 24 =
☐

f) 69 – 32 =
☐

g) 56 – 21 =
☐

h) 29 – 17 =
☐

i) 49 – 34 =
☐

j) 38 – 22 =
☐

k) 56 – 33 =
☐

l) 77 – 45 =
☐

Skill 5.8   Subtracting multi-digit whole numbers by using the standard algorithm, no carry (1).

MM2.2 1 1 2 2 **3 3** 4 4
MM3.1 1 1 2 **2** 3 3 4 4

- Always keep your working columns in lines. Line up units with units, tens with tens, etc.
- Subtract from right to left.

Q.

$$\begin{array}{r} 5\ 3\ 6 \\ -\ 1\ 2\ 4 \\ \hline \end{array}$$

A.

hundreds tens units

$$\begin{array}{r} 5\ 3\ 6 \\ -\ 1\ 2\ 4 \\ \hline \boxed{4\ 1\ 2} \end{array}$$ *(Units first!)*

Units:
$6 - 4 = 2$ $\Rightarrow$ 2 units

Tens:
$3 - 2 = 1$ $\Rightarrow$ 1 ten

Hundreds:
$5 - 1 = 4$ $\Rightarrow$ 4 hundreds

a)

$$\begin{array}{r} 3\ 5 \\ -\ \ 2 \\ \hline \boxed{3\ 3} \end{array}$$ *(Units first!)*

b)

$$\begin{array}{r} 4\ 8 \\ -\ \ 6 \\ \hline \end{array}$$

c)

$$\begin{array}{r} 2\ 7 \\ -\ \ 5 \\ \hline \end{array}$$

d)

$$\begin{array}{r} 4\ 7 \\ -\ 1\ 5 \\ \hline \end{array}$$

e)

$$\begin{array}{r} 2\ 6 \\ -\ 1\ 4 \\ \hline \end{array}$$

f)

$$\begin{array}{r} 5\ 3 \\ -\ 2\ 2 \\ \hline \end{array}$$

g)

$$\begin{array}{r} 2\ 9 \\ -\ 1\ 2 \\ \hline \end{array}$$

h)

$$\begin{array}{r} 3\ 4 \\ -\ 1\ 3 \\ \hline \end{array}$$

i)

$$\begin{array}{r} 4\ 4 \\ -\ 1\ 1 \\ \hline \end{array}$$

j)

$$\begin{array}{r} 5\ 6 \\ -\ 2\ 2 \\ \hline \end{array}$$

k)

$$\begin{array}{r} 5\ 7 \\ -\ 3\ 4 \\ \hline \end{array}$$

l)

$$\begin{array}{r} 7\ 8 \\ -\ 4\ 3 \\ \hline \end{array}$$

m)

$$\begin{array}{r} 6\ 5 \\ -\ 2\ 2 \\ \hline \end{array}$$

n)

$$\begin{array}{r} 4\ 9 \\ -\ 3\ 7 \\ \hline \end{array}$$

o)

$$\begin{array}{r} 6\ 9 \\ -\ 2\ 4 \\ \hline \end{array}$$

Skill 5.8 Subtracting multi-digit whole numbers by using the standard algorithm, no carry (2).

MM2.2 1 1 2 2 **33** 4 4
MM3.1 1 1 2 **2** 3 3 4 4

p)
```
  4 7 5
− 1 3 2
```

q)
```
  2 5 8
− 2 4 3
```

r)
```
  3 6 6
− 1 2 1
```

s)
```
  5 8 9
− 3 1 7
```

t)
```
  6 9 7
− 2 6 5
```

u)
```
  4 3 4
− 1 2 3
```

v)
```
  5 5 8
− 3 0 6
```

w)
```
  3 7 5
− 1 2 4
```

x)
```
  4 6 9
− 2 1 6
```

y)
```
  5 6 7
− 3 2 3
```

z)
```
  7 6 4
− 4 5 2
```

A)
```
  4 5 9
− 1 2 8
```

B)
```
  6 7 3
− 3 5 1
```

C)
```
  3 8 5
− 2 3 2
```

D)
```
  7 4 5
− 2 0 4
```

E)
```
  5 9 4
− 1 8 0
```

F)
```
  4 7 6
− 3 5 1
```

G)
```
  6 8 7
− 5 3 2
```

Skill 5.9 Subtracting multi-digit whole numbers by using the standard algorithm, with carry (1).

- Always keep your working columns in lines. Line up units with units, tens with tens, etc.
- Subtract from right to left.

Q.

$$703 - 325$$

A.

hundreds | tens | units

$$\begin{array}{c} 7\,0\,3 \\ -3\,2\,5 \end{array}$$

Units:
3 – 5 = ? units. Not possible.
No tens are available.
Break down the 7 hundreds.

7 hundreds = 6 hundreds
+ 9 tens
+ 10 units

hundreds | tens | units
6 | 9 | ¹

$$\begin{array}{c} \not{7}\,\not{0}\,\textcircled{3} \\ -3\,2\,5 \\ \hline 8 \end{array}$$

(*Units first!*)

Re-group the 3 units with the 10 units to make 13 units.

Now...
13 – 5 = 8   ⟹ 8 units

hundreds | tens | units
6 | 9 | ¹

$$\begin{array}{c} \not{7}\,\not{0}\,\textcircled{3} \\ -3\,2\,5 \\ \hline 3\,7\,8 \end{array}$$

(*Tens next!*)

Tens:
9 – 2 = 7   ⟹ 7 tens

Hundreds:
6 – 3 = 3   ⟹ 3 hundreds

a)

$$\begin{array}{c} {}^{4}\not{5}\,{}^{1}\textcircled{4} \\ -2\,6 \\ \hline 2\,8 \end{array}$$

(*Units first!*)

b)

$$\begin{array}{c} {}^{3}\not{4}\,{}^{1}3 \\ -2\,5 \end{array}$$

c)

$$\begin{array}{c} 6\,8 \\ -3\,9 \end{array}$$

d)

$$\begin{array}{c} 3\,5 \\ -1\,8 \end{array}$$

e)

$$\begin{array}{c} 5\,3 \\ -2\,6 \end{array}$$

f)

$$\begin{array}{c} 7\,1 \\ -3\,5 \end{array}$$

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Skill 5.9   Subtracting multi-digit whole numbers by using the standard algorithm, with carry (2).

MM2.2 1 1 2 2 3 3 4 4
MM3.1 1 1 2 3 3 4

g)
```
   6 8
 - 3 9
 _____
```

h)
```
   5 2
 - 1 7
 _____
```

i)
```
   4 5
 - 2 9
 _____
```

j)
```
   5 2
 - 1 8
 _____
```

k)
```
   5 3 4
 -   2 6
 _____
```

l)
```
   3 5 2
 -   1 7
 _____
```

m)
```
   4 9 5
 - 1 4 8
 _____
```

n)
```
   6 4 2
 - 3 2 7
 _____
```

o)
```
   3 5 6
 - 2 1 9
 _____
```

p)
```
   2 6 3
 - 1 3 7
 _____
```

q)
```
   5 1 6
 - 3 4 2
 _____
```

r)
```
   4 3 7
 - 1 8 4
 _____
```

s)
```
   4 0 0
 - 1 5 4
 _____
```

t)
```
   3 0 0
 - 1 2 5
 _____
```

u)
```
   6 2 0
 - 1 4 1
 _____
```

v)
```
   4 7 0
 - 1 7 9
 _____
```

w)
```
   5 0 3
 - 2 3 4
 _____
```

x)
```
   4 0 6
 - 3 2 8
 _____
```

- Guess the value of the missing number that will make the number sentence true. (Both sides of the number sentence must be equal).
- Fill in this value in the number sentence and check the subtraction.
  Hint: If the total on the left hand side of the number sentence is not enough then subtract a smaller number.
      If the total on the left hand side of the number sentence is too great then subtract a larger number.
- Keep guessing and checking until the number sentence is true.

Q. $14 - \boxed{} = 6$

A. $14 - ? = 6$ Guess 10.
  $14 - 10 = 4$ Subtracting 10 gives a total of 4 - not enough, so guess a smaller number.
  $14 - \mathbf{8} = 6$
  Guess 8.
  Check again.

---

a) $18 - \boxed{5} = 13$

$18 - 4 = 14$ *(too big)*

$18 - 5 = 13$ ✔

b) $29 - \boxed{} = 22$

$29 - 5 = 24$ *(too big)*

c) $\boxed{} - 11 = 16$

d) $\boxed{} - 13 = 15$

e) $16 - \boxed{} = 7$

f) $21 - \boxed{} = 13$

g) $25 - \boxed{} = 15$

h) $27 - \boxed{} = 16$

i) $\boxed{} - 18 = 9$

j) $\boxed{} - 12 = 4$

k) $18 - \boxed{} = 9$

l) $\boxed{} - 11 = 23$