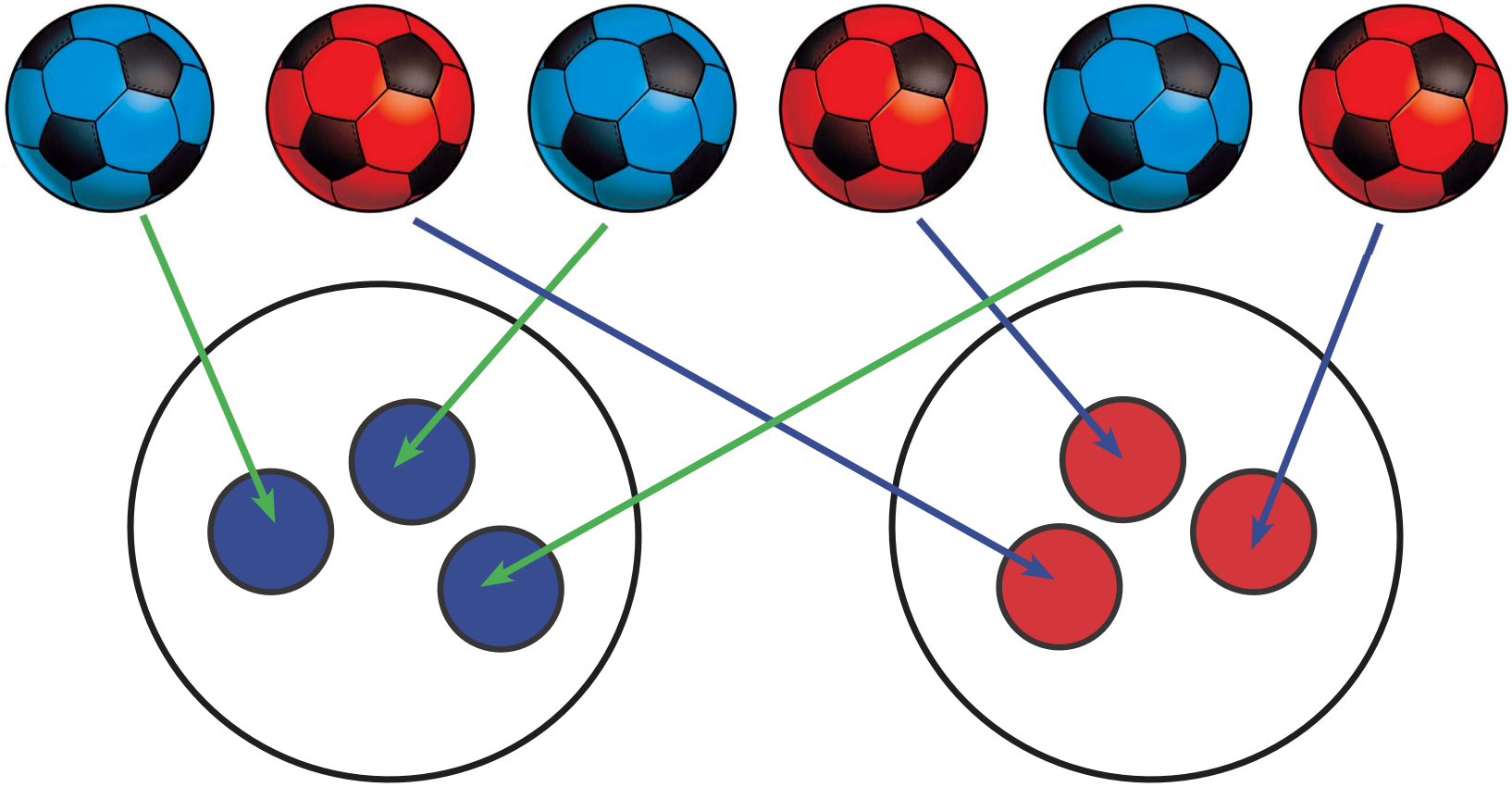
Division Strategies

D1: Objects and Pictures

1

Sharing

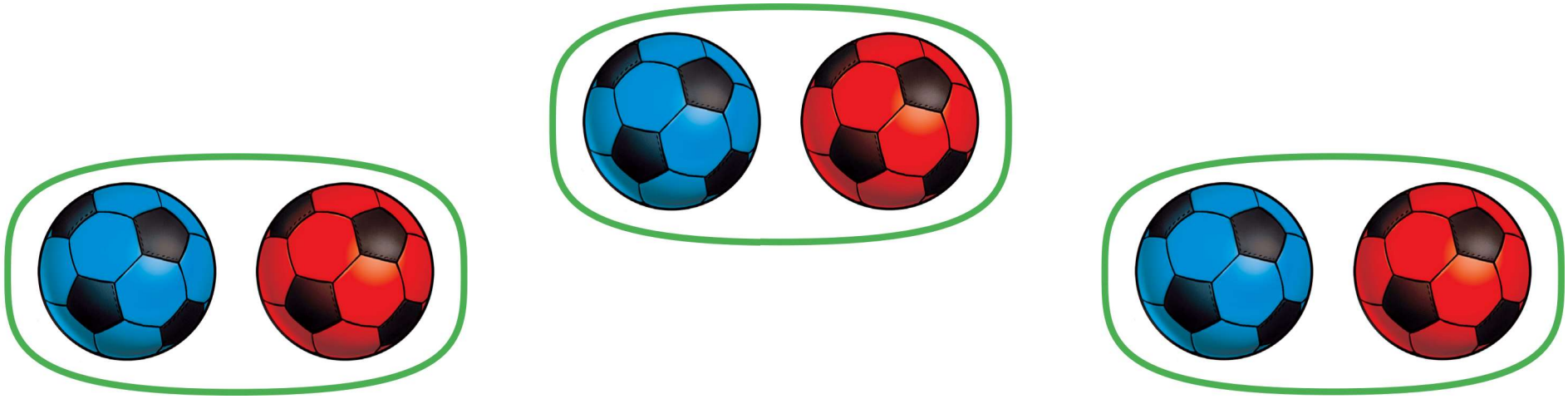


"If I share 6 footballs fairly into 2 bags, how many footballs in each bag?" Answer: 3

D2: Objects and Pictures

1

Grouping



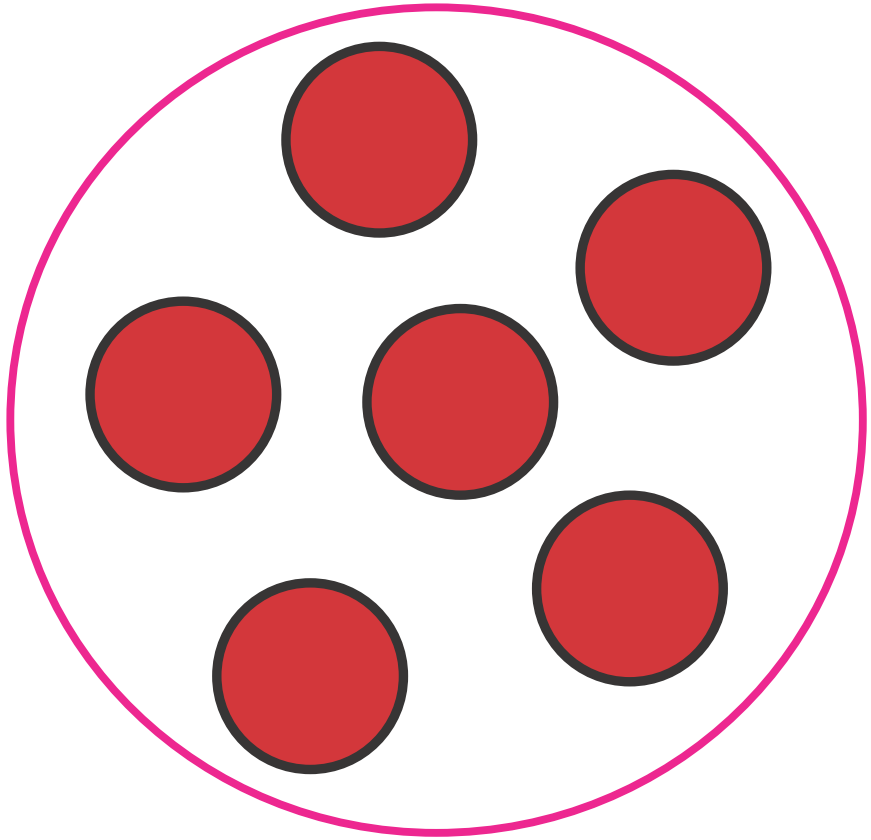
"If a child can carry 2 footballs, how many children do I need to carry 6 footballs? Answer: 3

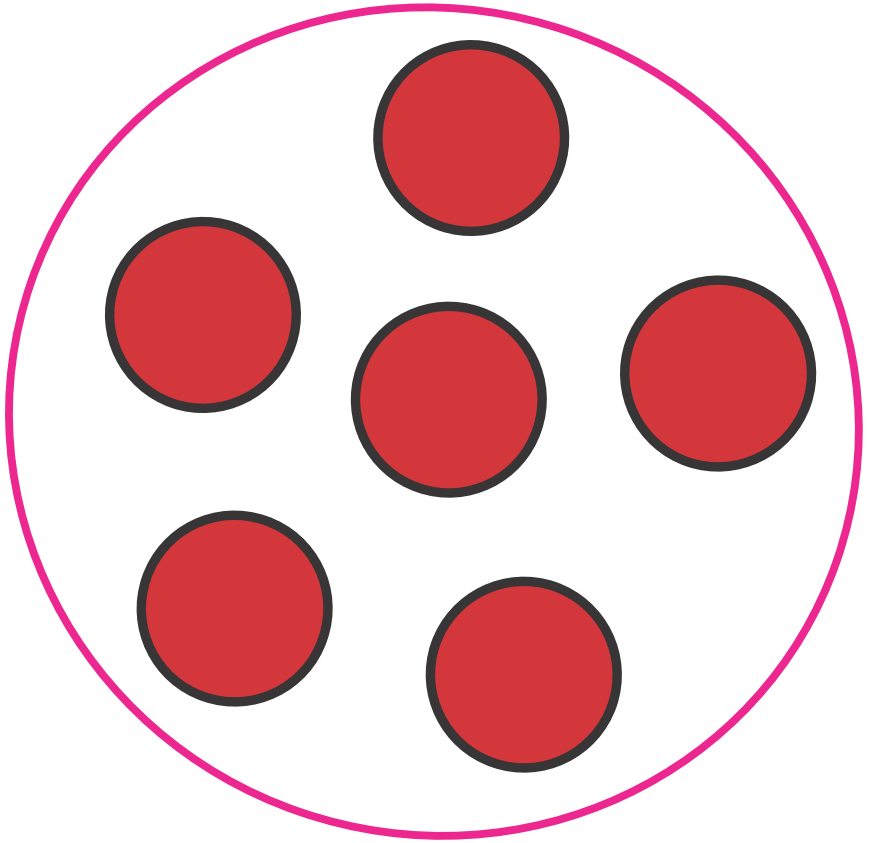
D3: Division as Sharing

2

12 ÷ 2 = 6

"If I share 12 into 2 equal amounts, how many in each group?" Answer: 6



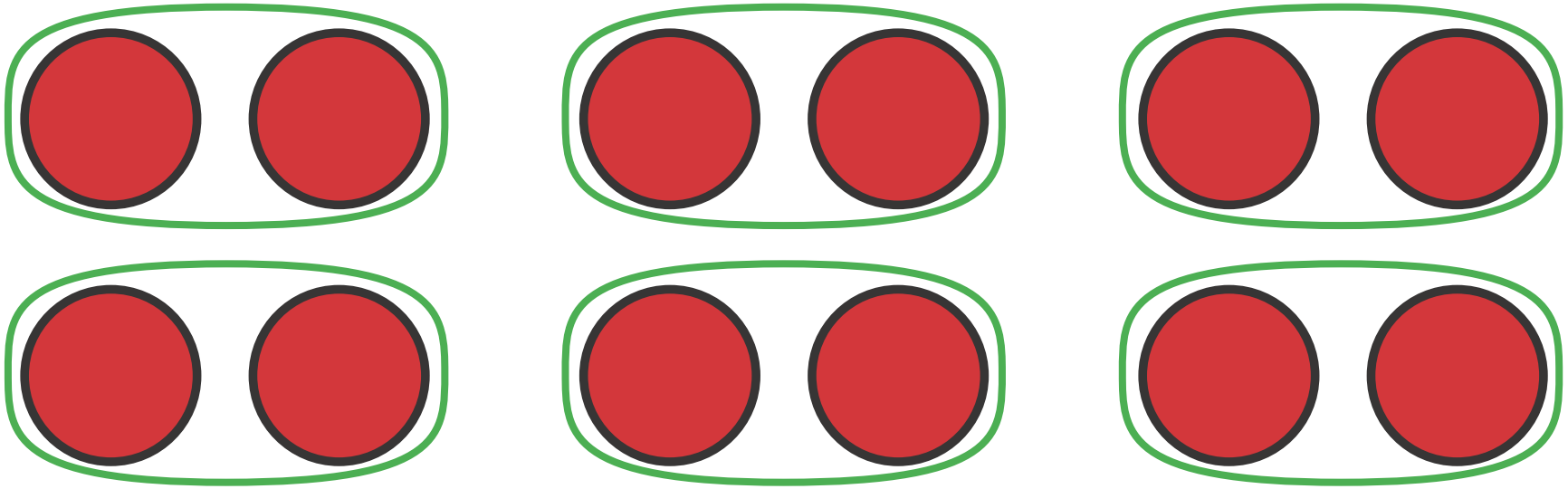


D4: Division as Grouping

2

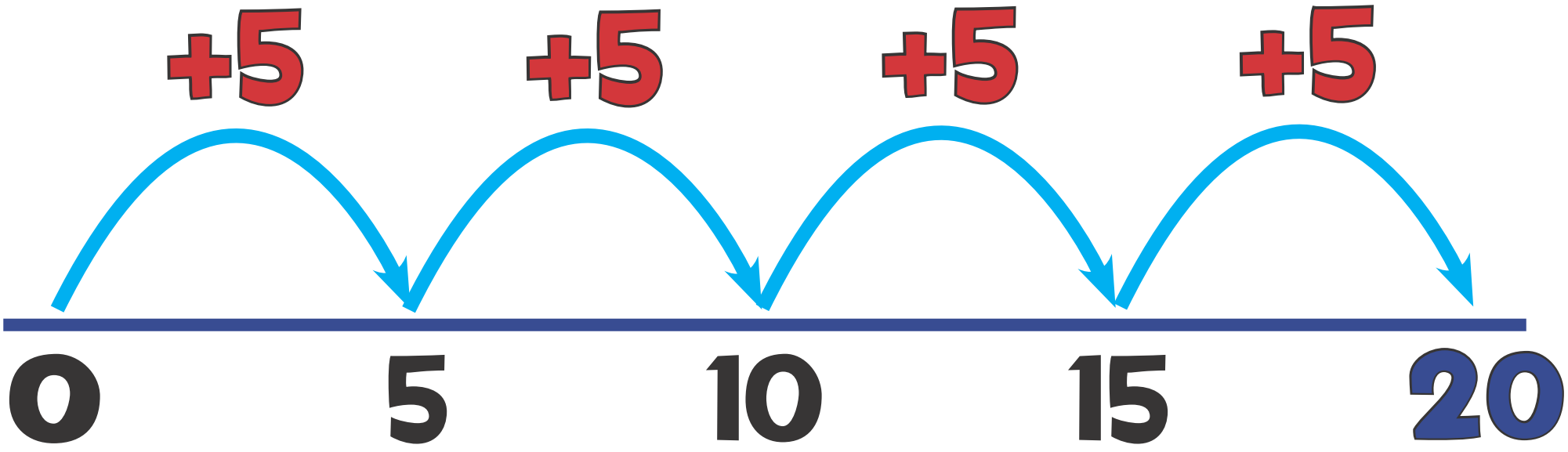
12 ÷ 2 = 6

"How many groups of 2 can I fit into 12?"
Answer: 6



D5: Grouping on a Number Line

2

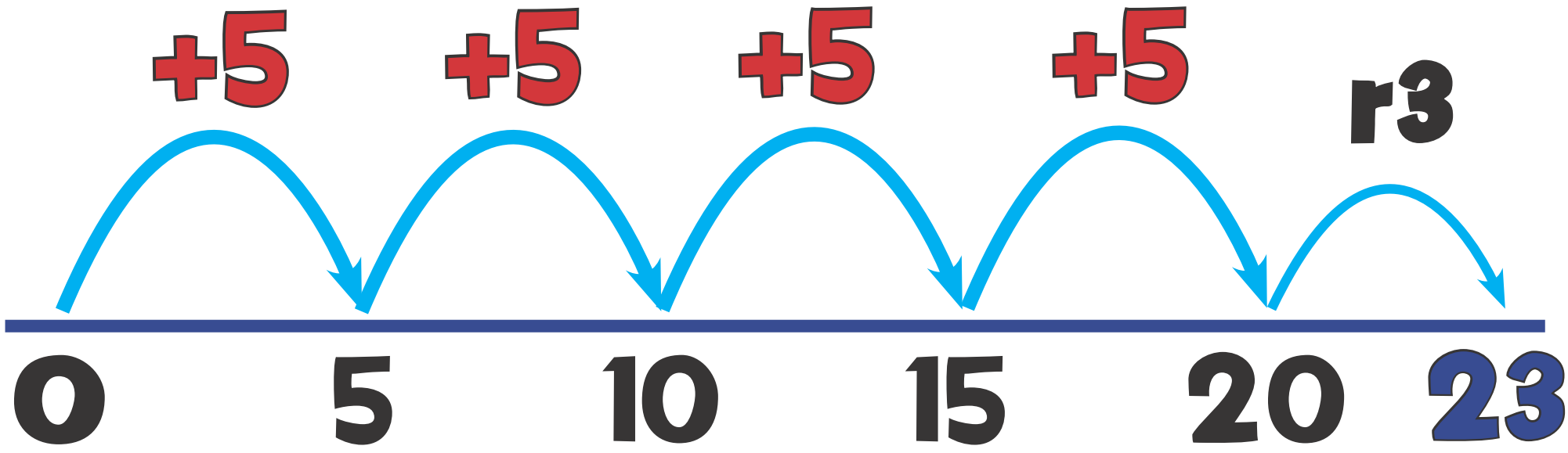


"How many 5s in 20?"
Answer: 4

$$20 \div 5 = 4$$

D5a: Grouping on a Number Line

2

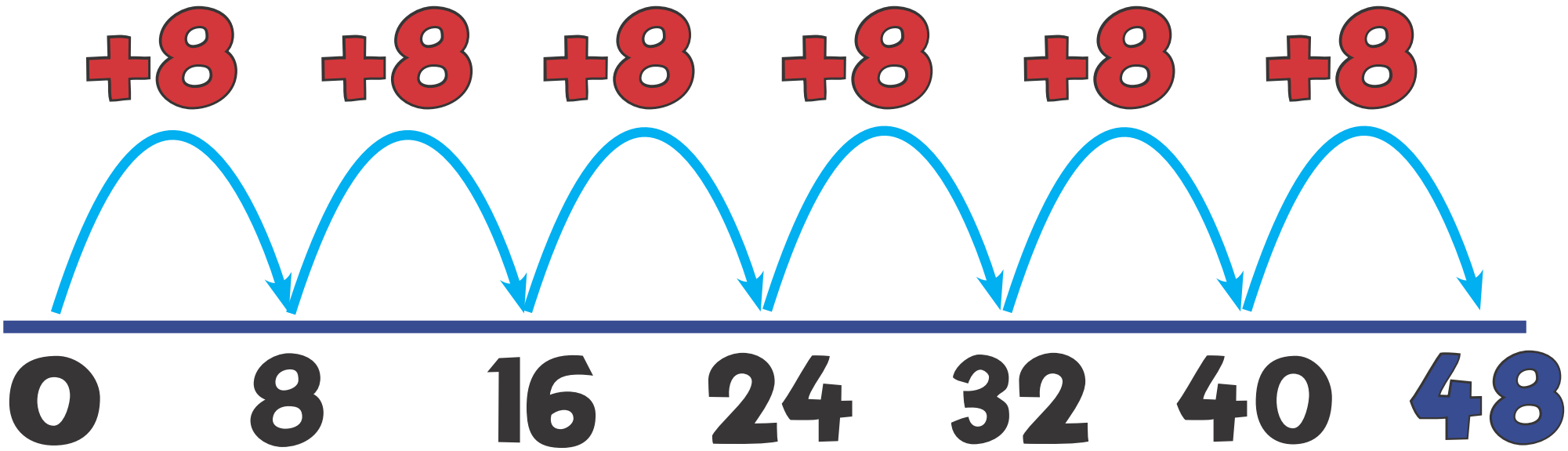


"How many 5s in 23?"
Answer: 4 remainder 3

$$23 \div 5 = 4r3$$

D5b: Grouping on a Number Line

3



"How many 8s in 48?"
Answer: 6

$$48 \div 8 = 6$$

D6: Grouping Grid

3

4	4	4	4	4
4				3

"How many times can I fit (groups of) 4 into 27?"
Answer: 6r3

$$27 \div 4 = 6r3$$

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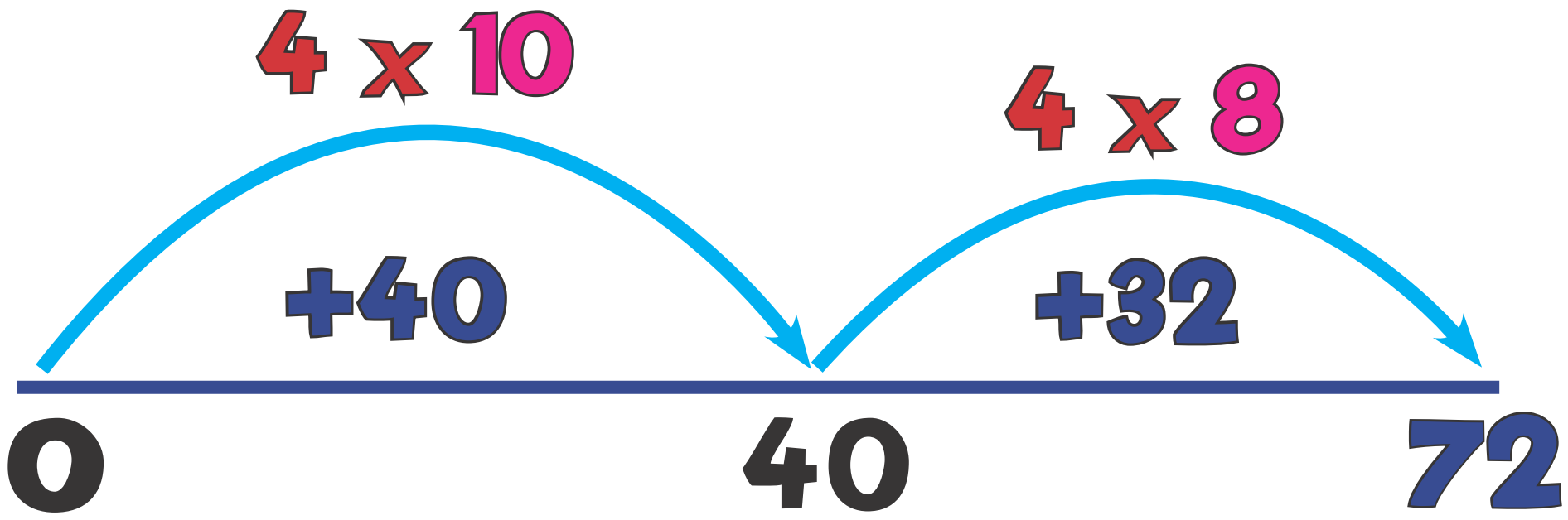
D7: Chunking Jump

3



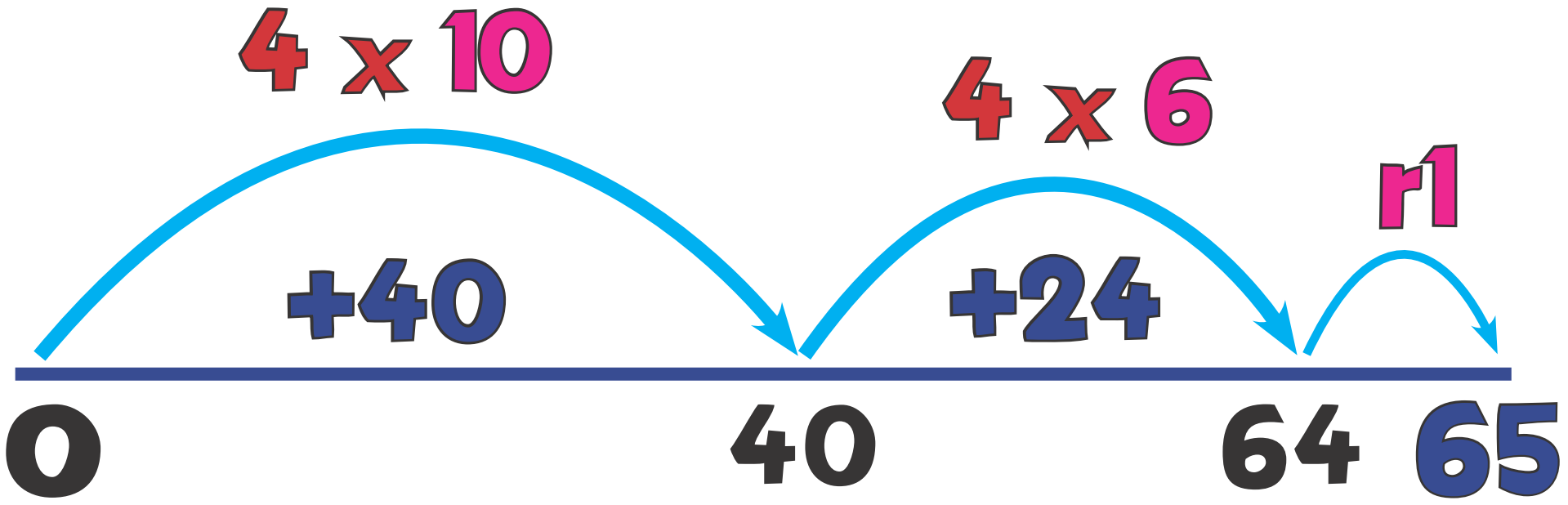
"How many 4s in 72?"
Answer: 18

$$72 \div 4 = 18$$

D7a: Chunking Jump

3

Remainders

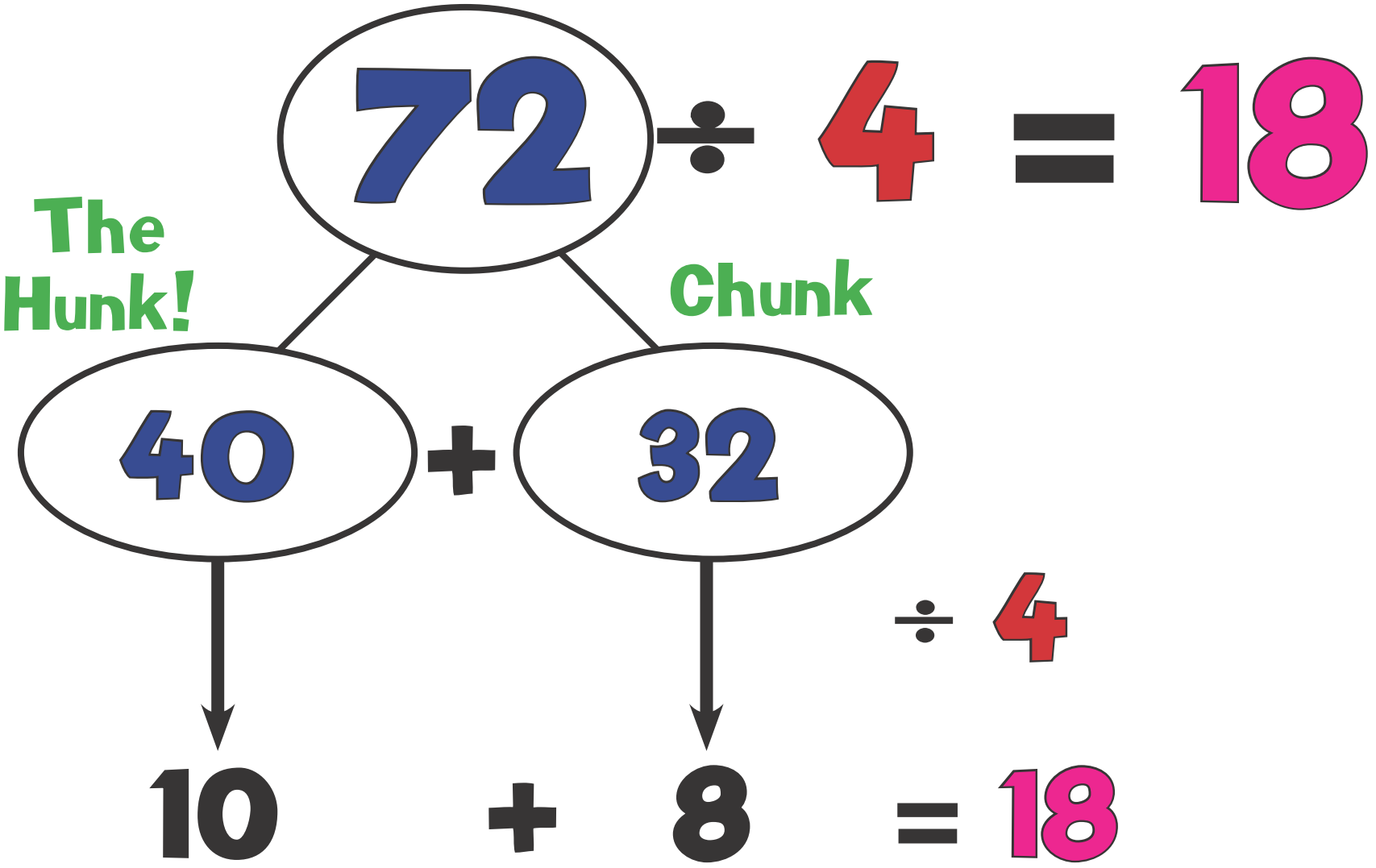


"How many 4s in 65?"
Answer: 16r1

$$65 \div 4 = 16r1$$

D8: Find the Hunk!

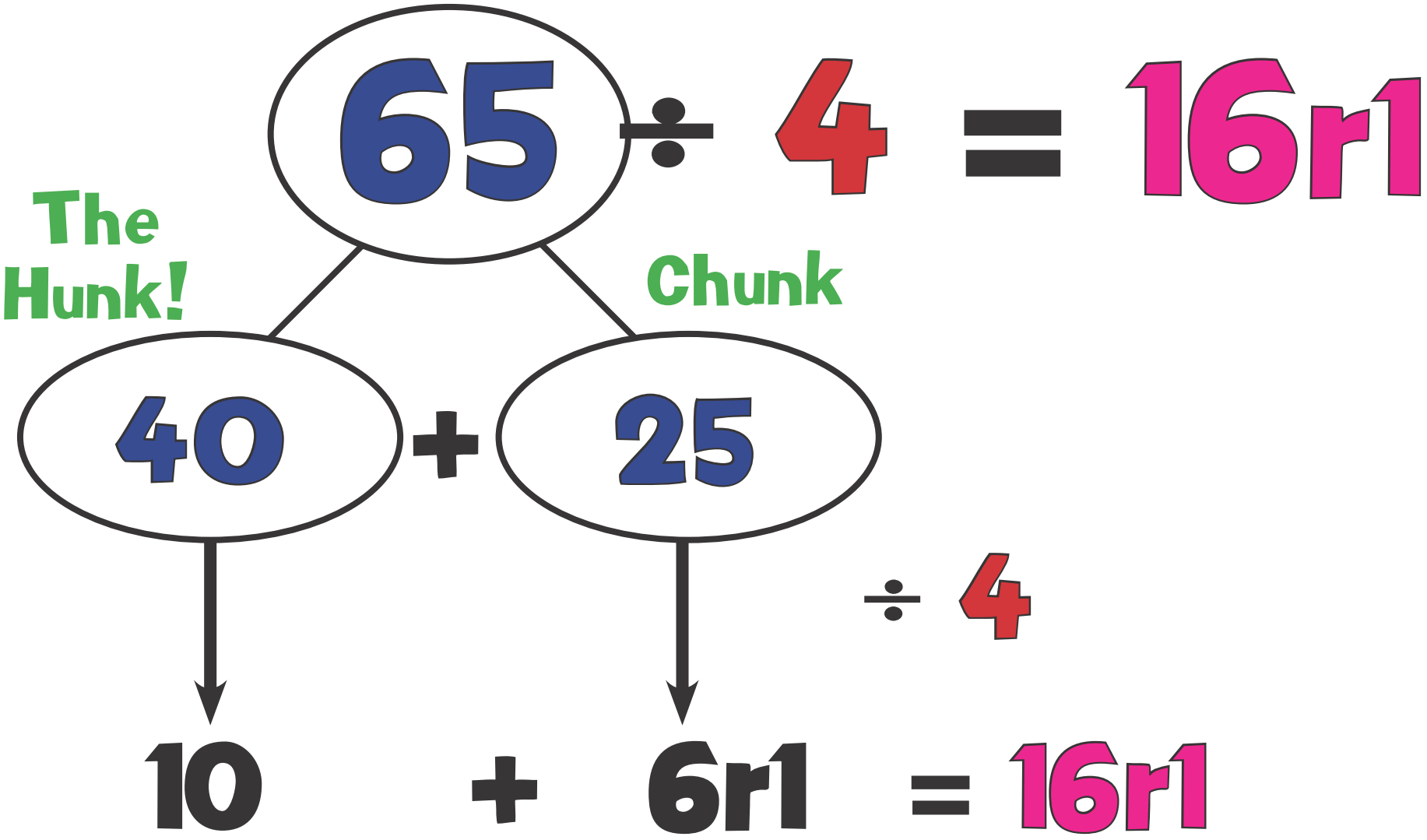
3



D8a: Find the Hunk!

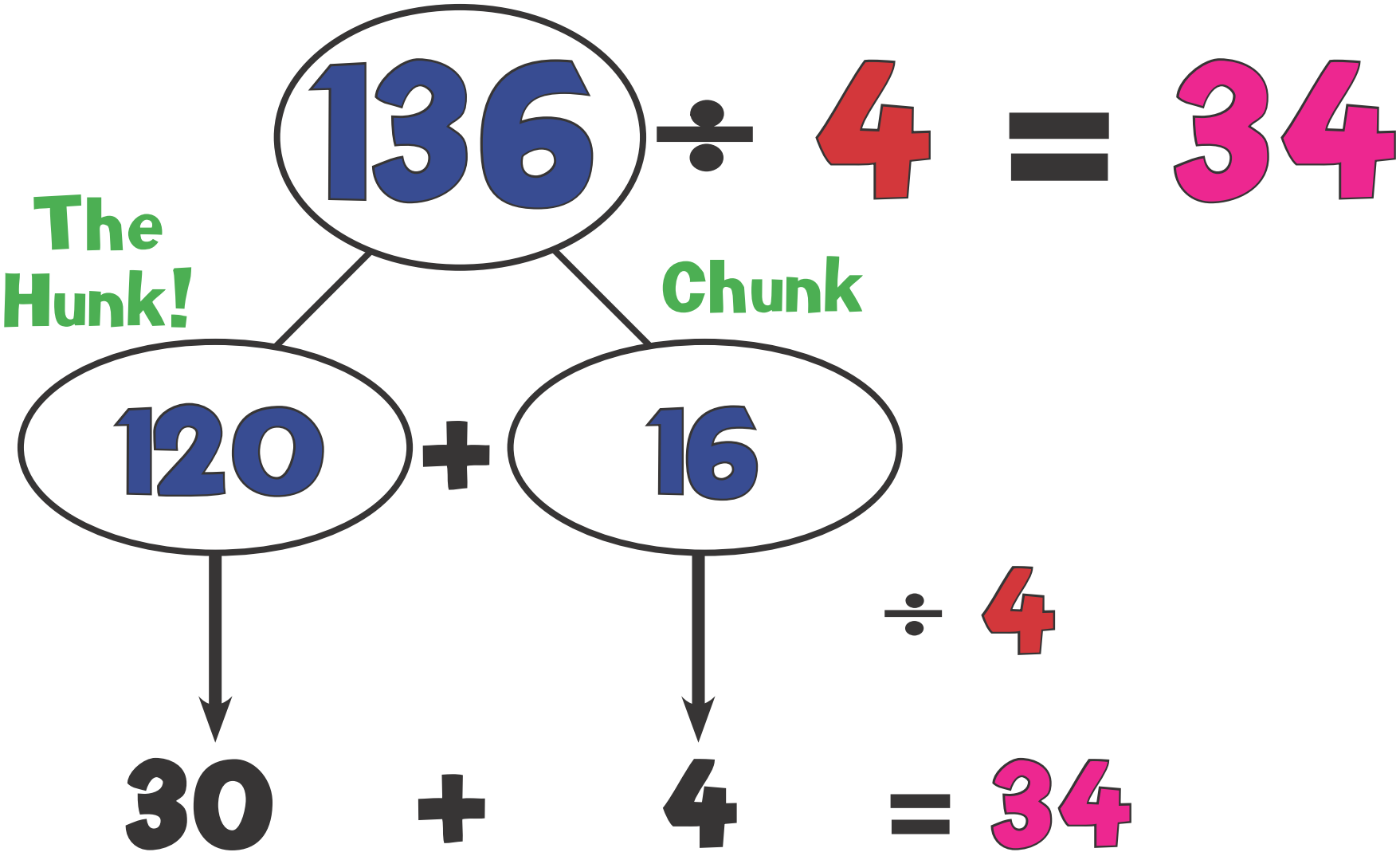
3

Remainders



D9: Mega Hunk!

4



D9c: Mega Hunk!

4

Remainders

145 ÷ 6 = 24r1

Mega Hunk!

Chunk

120 + 25

÷ 6

20 + 4r1 = 24r1

D9d: Mega Hunk!

5

Remainders

394 ÷ 6 = 65r4

Mega Hunk!

Chunk

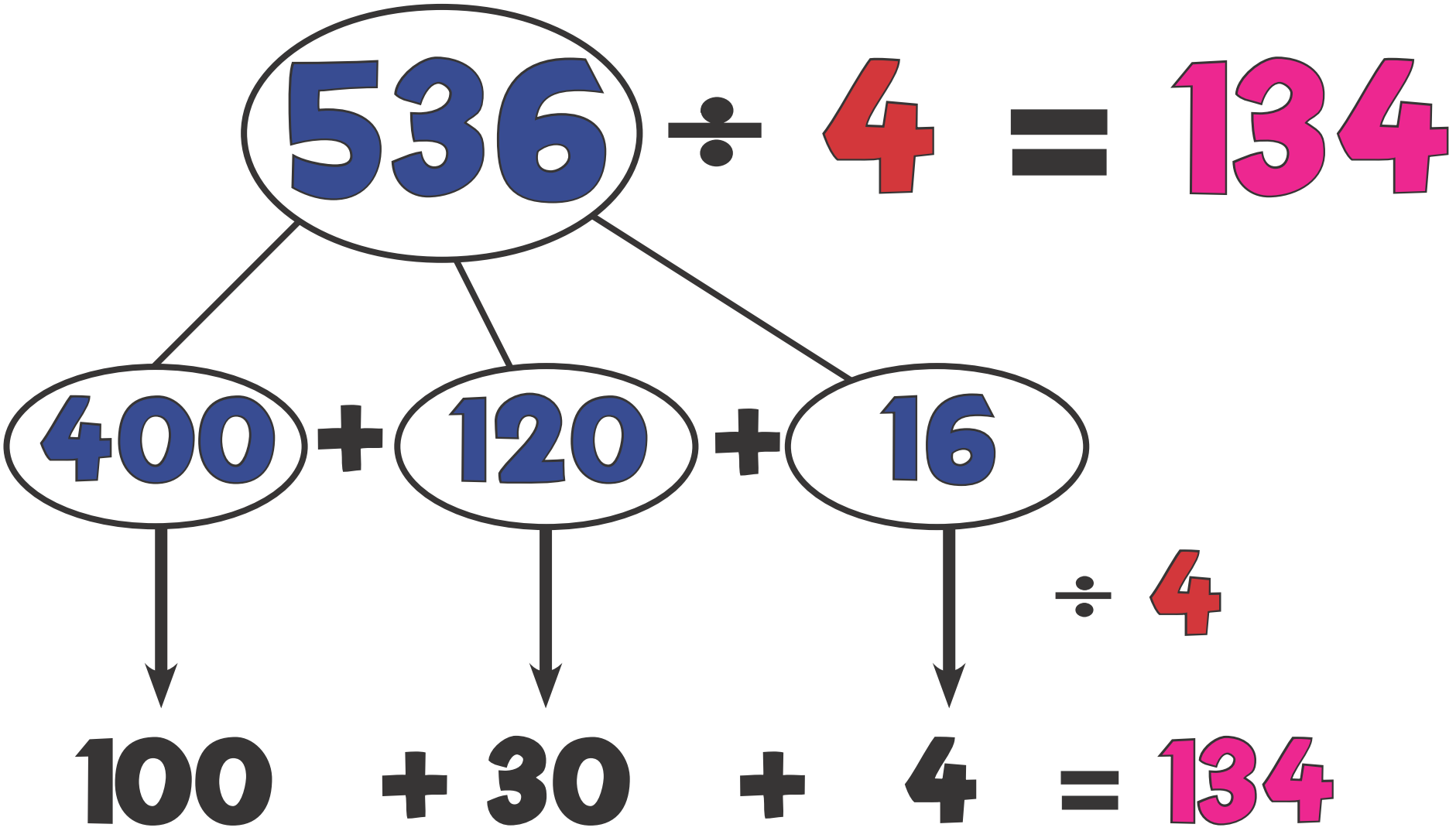
360 + 34

÷ 6

60 + 5r4 = 65r4

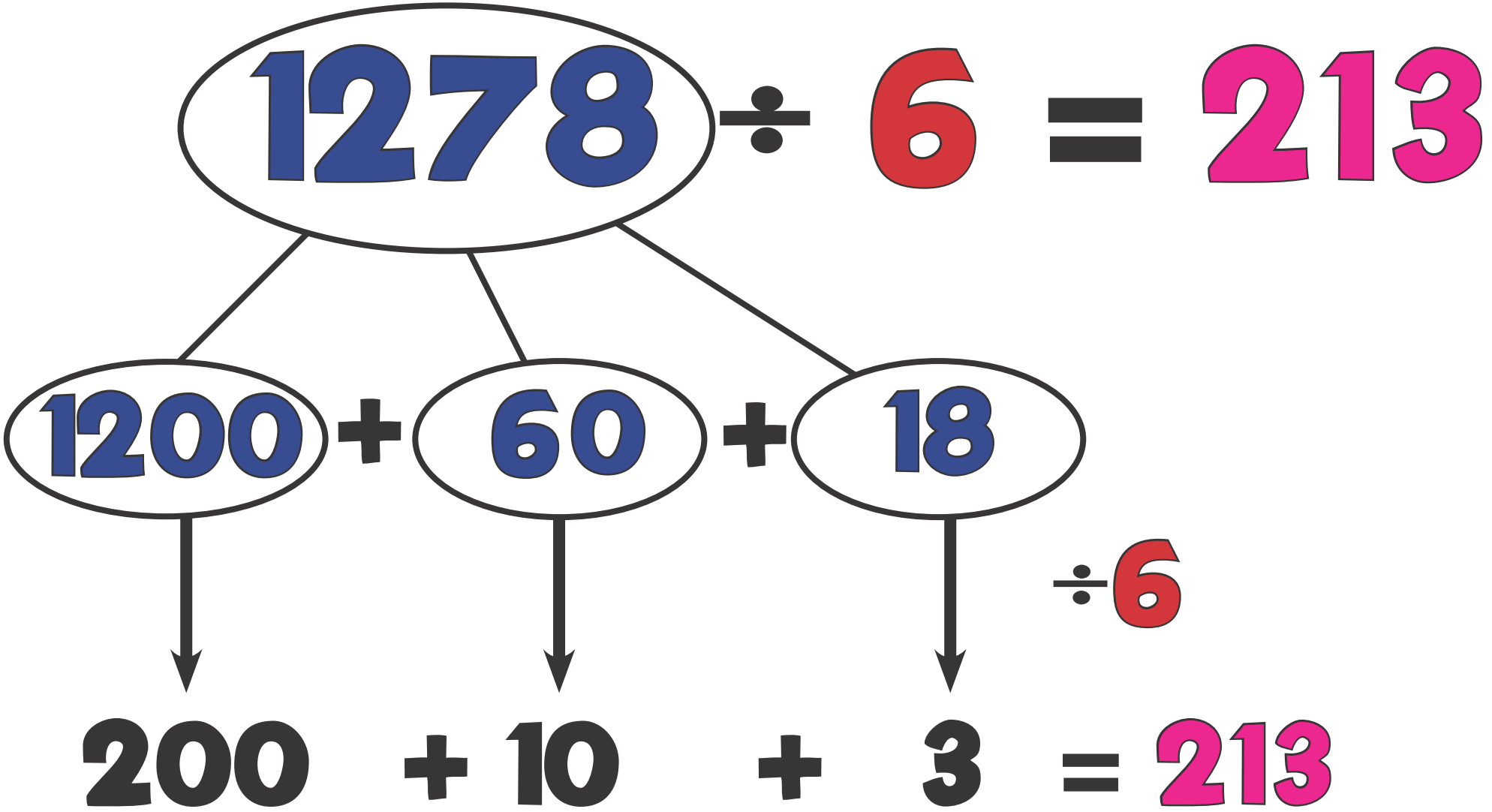
D9e: Mega Hunk!

5



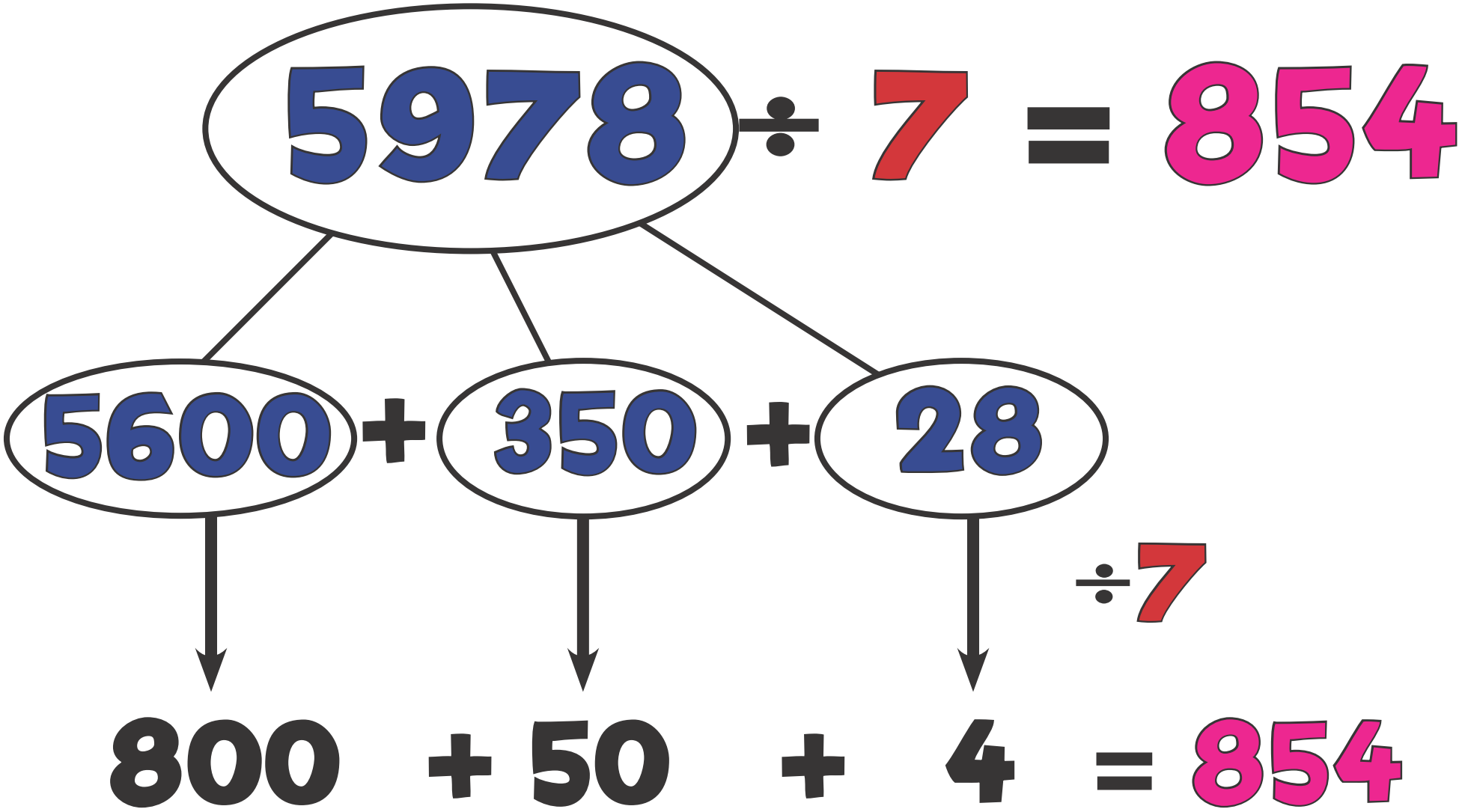
D9f: Mega Hunk!

5



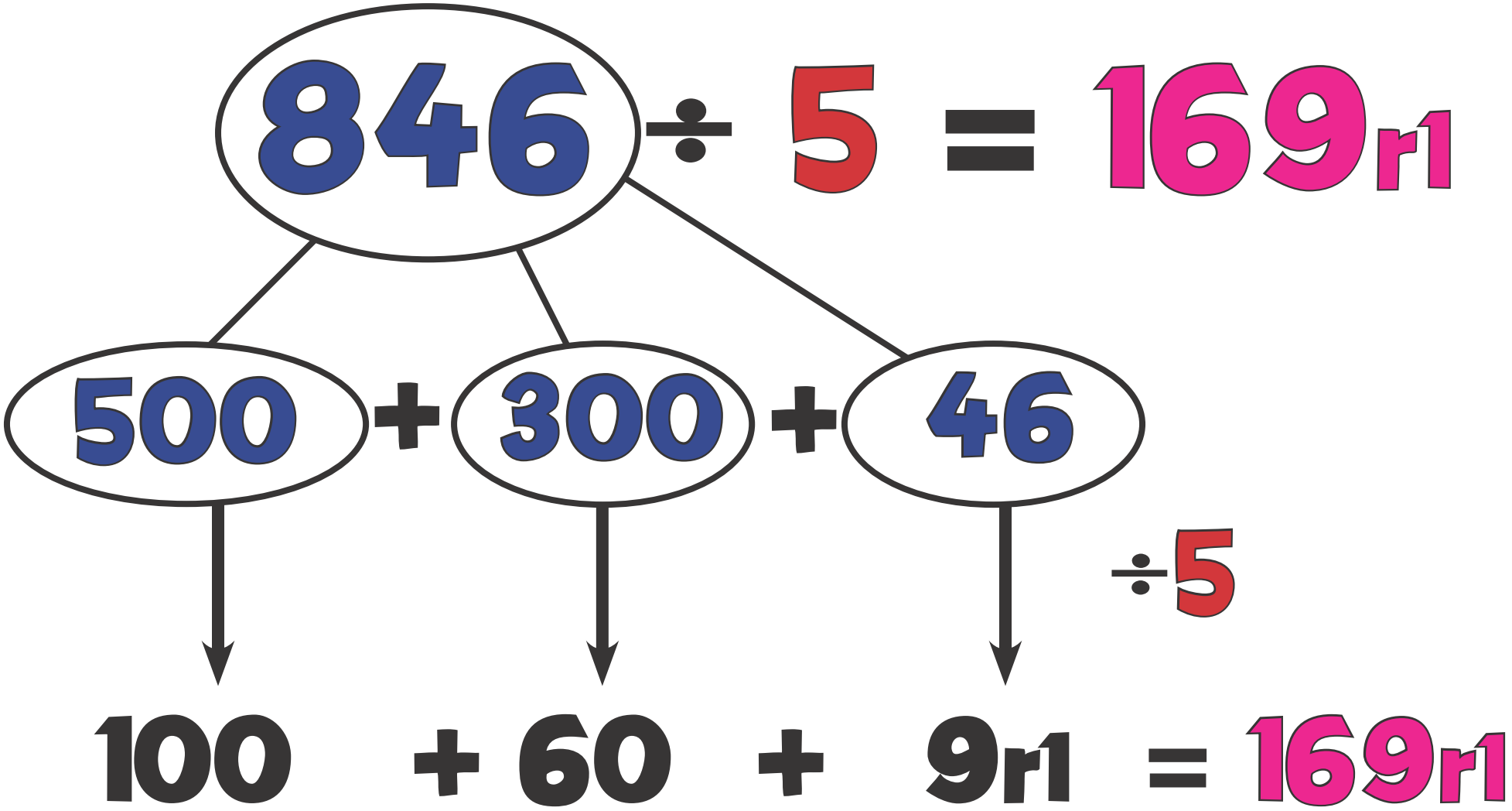
D9g: Mega Hunk!

5



D9h: Mega Hunk!

5



D9i: Mega Hunk!

6

Simple Long Division

480 ÷ 15 = 32

Mega Hunk!

Chunk

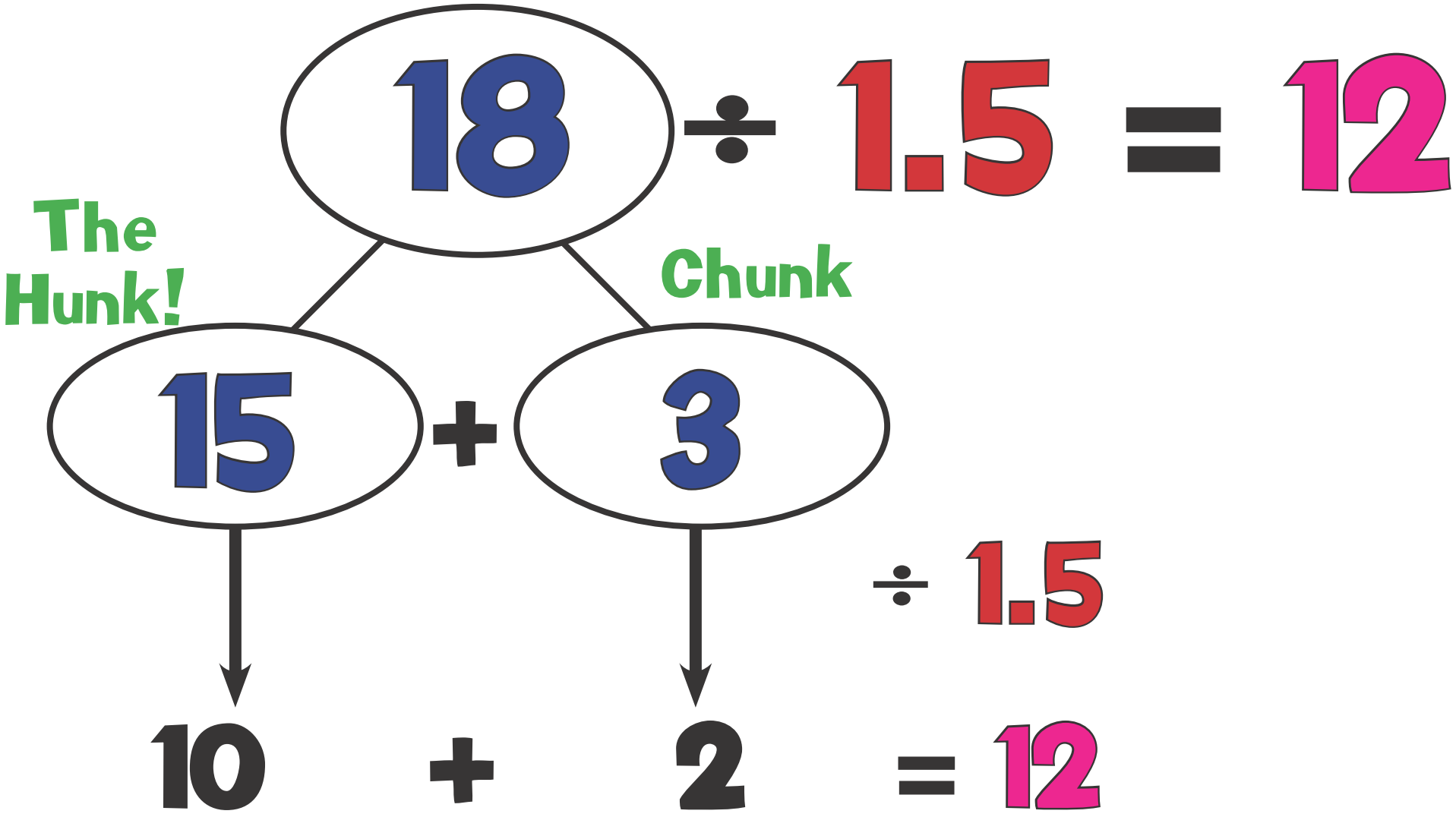
450 + 30

÷ 15

30 + 2 = 32

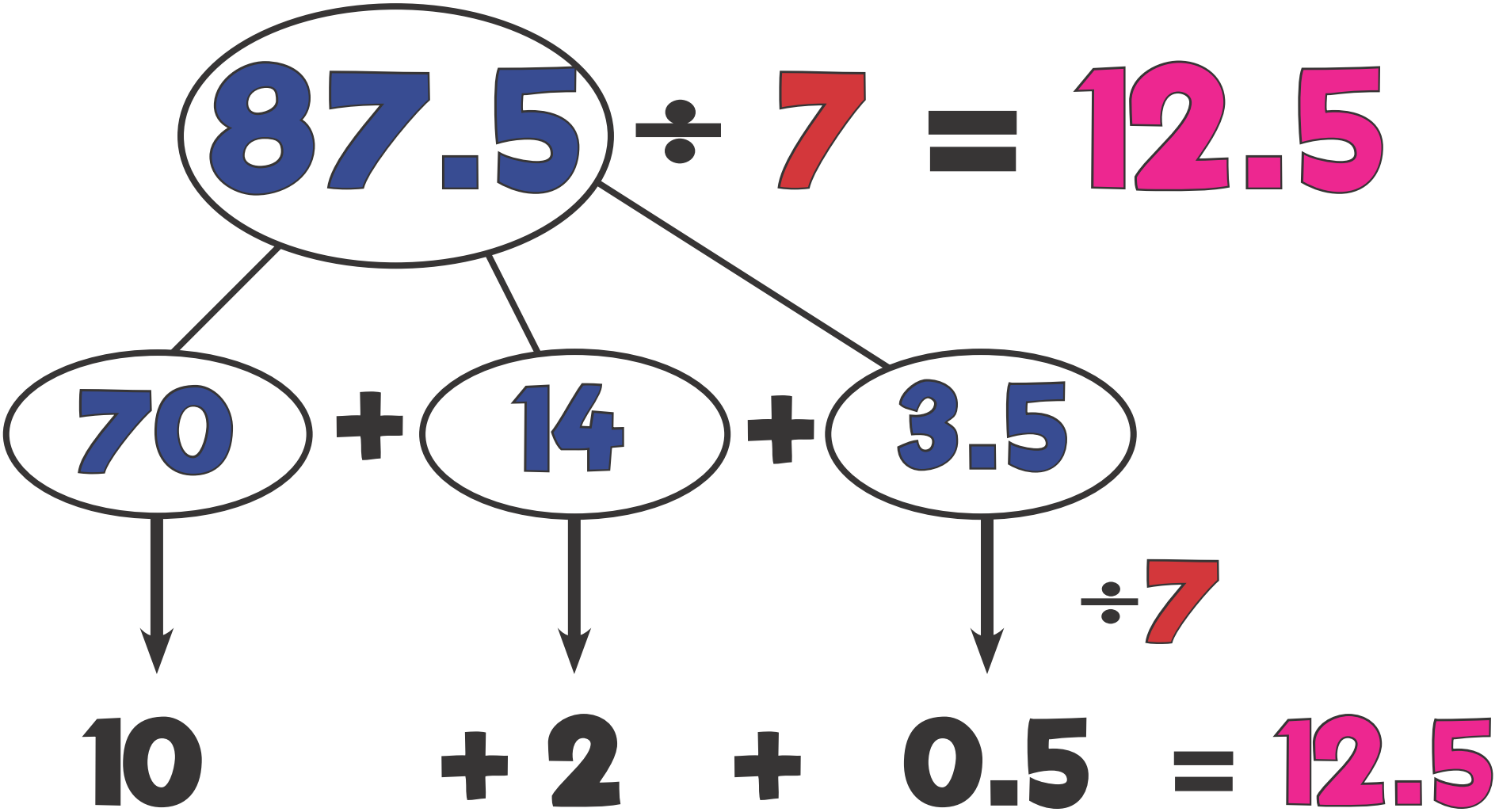
D9 j: Decimal Hunk!

6



D9k: Decimal Hunk!

6



D10: Short Division

3

$$72 \div 4 = 18$$

$$\begin{array}{r} 18 \\ 4\overline{)\,7^{3}2} \end{array}$$

D10a: Short Division

3

$$65 \div 4 = 16\text{r}1$$

$$4\overline{)\,6^{2}5}\quad 16\text{r}1$$

D10b: Short Division

4

$$136 \div 4 = 34$$

$$4\overline{)136} = 34$$

D10c: Short Division

4

$$145 \div 6 = 24\text{r}1$$

$$6\overline{)1^{1}4^{2}5} \qquad 24\text{r}1$$

D10d: Short Division

5

$$394 \div 6 = 65r4$$

$$6\overline{)394} = 65r4$$

D10e: Short Division

5

$$536 \div 4 = 134$$

$$\begin{array}{r} 134 \\ 4\overline{)536} \\ \end{array}$$

D10f: Short Division

5

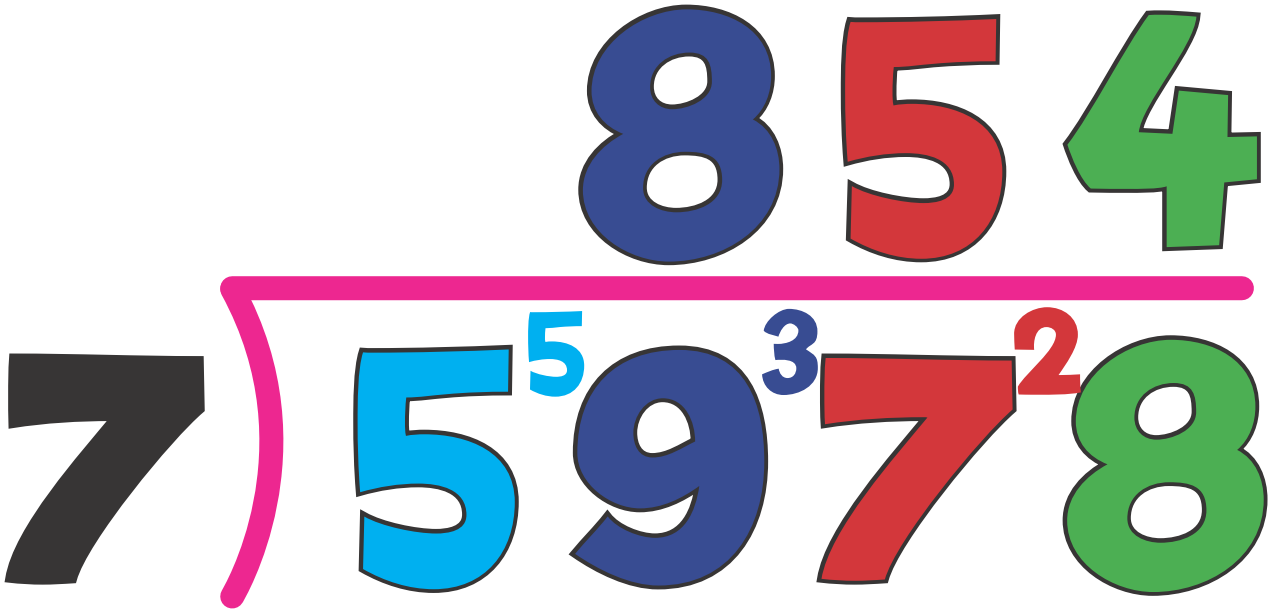
1278 ÷ 6 = 213

$$
\begin{array}{r}
213 \\
6\overline{)1^{1}2\,7^{1}8}
\end{array}
$$

D10g: Short Division

5

5978 ÷ 7 = 854



D10h: Short Division

5

Different Remainders

$$\begin{array}{r} 169.2 \\ 5\overline{)\,8^{3}4^{4}6.^{1}0} \end{array}$$

$$846 \div 5$$

$$\begin{array}{r} 169\text{r}1 \\ 5\overline{)\,8^{3}4^{4}6} \end{array}$$

$$\begin{array}{r} 169\frac{1}{5} \\ 5\overline{)\,8^{3}4^{4}6} \end{array}$$

D10k: Short Division

6

$$87.5 \div 7 = 12.5$$

$$7\overline{)87.5} = 12.5$$

D11: Chunking

3

$$
\begin{array}{r|l}
 & 18 \\
\hline
4 & 72 \\
- & 40 \quad (4 \times 10) \\
\hline
 & 32 \\
- & 32 \quad (4 \times 8) \\
\hline
 & 0
\end{array}
$$

$72 \div 4 = 18$

D11: Chunking

3

$$
\begin{array}{r}
16\text{r}1 \\
4\overline{)\,65} \\
-\ 40 \quad (4 \times 10) \\
\hline
25 \\
-\ 24 \quad (4 \times 6) \\
\hline
1
\end{array}
$$

$65 \div 4 = 16\text{r}1$

D11bA: Chunking

4

$$
\begin{array}{r|l}
 & 34 \\
\hline
4 & 136 \\
-120 & (4 \times 30) \\
\hline
 & 16 \\
-\ 16 & (4 \times 4) \\
\hline
 & 0
\end{array}
$$

136 ÷ 4 = 34

D11bB: Chunking

4

```
      34
   ┌────
4  │ 136
   - 40   (4 x 10)
   ────
     96
   - 40   (4 x 10)
   ────
     56
   - 40   (4 x 10)
   ────
     16
   - 16   (4 x 4)
   ────
      0
```

136 ÷ 4 = 34

D11c: Chunking

4

Remainders

24 r1

6) 145

-120 (6 x 20)

25

- 24 (6 x 4)

1

145 ÷ 4 = 24r1

D11d: Chunking

5

Remainders

$$
\begin{array}{r}
65\text{r}4 \\
6\overline{)394} \\
-\ 360 \quad (6 \times 60) \\
\hline
34 \\
-\ 30 \quad (6 \times 5) \\
\hline
4
\end{array}
$$

$394 \div 6 = 65\text{r}4$

D11e: Chunking

5

Mega Chunk

```
      134
   ┌─────
4  │ 536
   - 400   (4 x 100)
   ─────
     136
   - 120   (4 x 30)
   ─────
      16
   -  16   (4 x 4)
   ─────
       0
```

536 ÷ 4 = 134

D11f: Chunking

5

Mega Chunk

$$
\begin{array}{r|l}
 & 213 \\
\hline
6 & 1278 \\
-\,1200 & (6 \times 200) \\
\hline
 & 78 \\
-\,60 & (6 \times 10) \\
\hline
 & 18 \\
-\,18 & (6 \times 3) \\
\hline
 & 0
\end{array}
$$

$$1278 \div 6 = 213$$

D11g: Chunking

5

Mega Chunk

```
      854
   ┌──────
7  │ 5978
   - 5600   (7 x 800)
   ──────
     378
   - 350    (7 x 50)
   ──────
      28
   - 28     (7 x 4)
   ──────
       0
```

5978 ÷ 7 = 854

D11h: Chunking

5

Mega Chunk

$$
\begin{array}{r}
169\text{r}1 \\
5\overline{)\,846} \\
-\ 500 \quad (5 \times 100) \\
\hline
346 \\
-\ 300 \quad (5 \times 60) \\
\hline
46 \\
-\ 45 \quad (5 \times 9) \\
\hline
1
\end{array}
$$

$$846 \div 5 = 169\text{r}1$$

D11iA: Chunking

6

Long Division

$$
\begin{array}{r}
32 \\
15 \overline{)\,480} \\
-\ 450 \quad (15 \times 30) \\
\hline
30 \\
-\ 30 \quad (15 \times 2) \\
\hline
0
\end{array}
$$

$480 \div 15 = 32$

D11iB: Chunking

6

Long Division

$$
\begin{array}{r|l}
 & 32 \\
\hline
15 & 480 \\
- & 150 \quad (15 \times 10) \\
\hline
 & 330 \\
- & 150 \quad (15 \times 10) \\
\hline
 & 180 \\
- & 150 \quad (15 \times 10) \\
\hline
 & 30 \\
- & 30 \quad (15 \times 2) \\
\hline
 & 0
\end{array}
$$

$480 \div 15 = 32$

D12: Long Division

6

Short Division Method

$$\begin{array}{r} 26 \text{ r } 21 \\ 37 \overline{)\,983} \end{array}$$

9 24

D13A: Long Division

6

Chunking Method

$$
\begin{array}{r}
26 \text{ r } 21 \\
37 \overline{)\,983} \\
-\ 740 \quad (37 \times 20) \\
\hline
243 \\
-\ 222 \quad (37 \times 6) \\
\hline
21
\end{array}
$$

$983 \div 37 = 26 \text{ r } 21$

D13B: Long Division

6

Chunking Method

$$
\begin{array}{r}
26 \text{ r } 21 \\
37 \overline{)\,983} \\
-\,370 \quad (37 \times 10) \\
\hline
613 \\
-\,370 \quad (37 \times 10) \\
\hline
243 \\
-\,222 \quad (37 \times 6) \\
\hline
21
\end{array}
$$

$$983 \div 37 = 26 \text{ r } 21$$

D14: Long Division

6

Traditional Method

$$
\begin{array}{r}
26 \text{ r } 21 \\
37 \overline{)\,983} \\
-\,74 \\
\hline
243 \\
-\,222 \\
\hline
21
\end{array}
$$

$983 \div 37 = 26 \text{ r } 21$

MF: 2x Table Facts

2 x 1 = 2	2 x 7 = 14
2 x 2 = 4	2 x 8 = 16
2 x 3 = 6	2 x 9 = 18
2 x 4 = 8	2 x 10 = 20
2 x 5 = 10	2 x 11 = 22
2 x 6 = 12	2 x 12 = 24

MF: 3x Table Facts

3 x 1 = 3	3 x 7 = 21
3 x 2 = 6	3 x 8 = 24
3 x 3 = 9	3 x 9 = 27
3 x 4 = 12	3 x 10 = 30
3 x 5 = 15	3 x 11 = 33
3 x 6 = 18	3 x 12 = 36

MF: 4x Table Facts

4 x 1 = 4	4 x 7 = 28
4 x 2 = 8	4 x 8 = 32
4 x 3 = 12	4 x 9 = 36
4 x 4 = 16	4 x 10 = 40
4 x 5 = 20	4 x 11 = 44
4 x 6 = 24	4 x 12 = 48

MF: 5x Table Facts

5 x 1 = 5	5 x 7 = 35
5 x 2 = 10	5 x 8 = 40
5 x 3 = 15	5 x 9 = 45
5 x 4 = 20	5 x 10 = 50
5 x 5 = 25	5 x 11 = 55
5 x 6 = 30	5 x 12 = 60

MF: 6x Table Facts

6 x 1 = 6
6 x 2 = 12
6 x 3 = 18
6 x 4 = 24
6 x 5 = 30
6 x 6 = 36
6 x 7 = 42
6 x 8 = 48
6 x 9 = 54
6 x 10 = 60
6 x 11 = 66
6 x 12 = 72

MF: 7x Table Facts

7 x 1 = 7	7 x 7 = 49
7 x 2 = 14	7 x 8 = 56
7 x 3 = 21	7 x 9 = 63
7 x 4 = 28	7 x 10 = 70
7 x 5 = 35	7 x 11 = 77
7 x 6 = 42	7 x 12 = 84

MF: 8x Table Facts

8 x 1 = 8	8 x 7 = 56
8 x 2 = 16	8 x 8 = 64
8 x 3 = 24	8 x 9 = 72
8 x 4 = 32	8 x 10 = 80
8 x 5 = 40	8 x 11 = 88
8 x 6 = 48	8 x 12 = 96

MF: 9x Table Facts

9 x 1 = 9	9 x 7 = 63
9 x 2 = 18	9 x 8 = 72
9 x 3 = 27	9 x 9 = 81
9 x 4 = 36	9 x 10 = 90
9 x 5 = 45	9 x 11 = 99
9 x 6 = 54	9 x 12 = 108

MF: 10x Table Facts

10 x 1 = 10
10 x 2 = 20
10 x 3 = 30
10 x 4 = 40
10 x 5 = 50
10 x 6 = 60
10 x 7 = 70
10 x 8 = 80
10 x 9 = 90
10 x 10 = 100
10 x 11 = 110
10 x 12 = 120

MF: 11x Table Facts

11 x 1 = 11
11 x 2 = 22
11 x 3 = 33
11 x 4 = 44
11 x 5 = 55
11 x 6 = 66
11 x 7 = 77
11 x 8 = 88
11 x 9 = 99
11 x 10 = 110
11 x 11 = 121
11 x 12 = 132

MF: 12x Table Facts

12 x 1 = 12
12 x 2 = 24
12 x 3 = 36
12 x 4 = 48
12 x 5 = 60
12 x 6 = 72
12 x 7 = 84
12 x 8 = 96
12 x 9 = 108
12 x 10 = 120
12 x 11 = 132
12 x 12 = 144