

Rainbow Division Traps & Tips!

Trap!

Not enough liquid in first digit.

$$\begin{array}{r} 3 \overline{) 24} \\ \underline{0} \\ 24 \end{array}$$

A 3-tablet won't dissolve even once into a 2-liquid.

Tip!

Enlarge container until it has enough liquid.

$$\begin{array}{r} 8 \\ 3 \overline{) 24} \\ \underline{-24} \\ 0 \end{array}$$

Important!

Place guess over *last* digit of container, not over first digit.

$$\begin{array}{r} 8 \\ 3 \overline{) 24} \\ \underline{0} \\ 24 \end{array}$$

SHORT DIVISION

Subtract in your head!

- Flip division sign.

$$2 \overline{) 34}$$

- 2 into 3 = 1 time
- 3 - 2 = remainder 1
- Carry remainder to 4

$$\begin{array}{r} 2 \overline{) 34} \\ \underline{2} \\ 14 \end{array}$$

- 2 into 14 = 7 times

$$\begin{array}{r} 2 \overline{) 34} \\ \underline{2} \\ 14 \\ \underline{14} \\ 0 \end{array}$$

- Answer = 17

Trap!

Guess too high.

$$\begin{array}{r} 15 \overline{) 48} \\ \underline{-60} \\ 18 \end{array}$$

Oops! More liquid in the gold pot than you started with.

Trap!

Guess too low.

$$\begin{array}{r} 15 \overline{) 48} \\ \underline{-30} \\ 18 \end{array}$$

Oops! Too much liquid remains. Tablet can dissolve one more time.

Tip!

Test guesses on the side first.

$$\begin{array}{r} 15 \\ \times 4 \\ \hline 60 \\ 15 \\ \times 2 \\ \hline 30 \\ 15 \\ \times 3 \\ \hline 45 \end{array}$$

$$\begin{array}{r} 3 \\ 15 \overline{) 48} \\ \underline{-45} \\ 3 \end{array}$$

That's better!
No erasing required.

REMAINDERS

When a tablet doesn't dissolve completely, here are 3 ways to handle the remaining liquid.

Use R

R = Remainder

$$\begin{array}{r} 4 \text{ R}1 \\ 2 \overline{) 9} \\ \underline{-8} \\ 1 \end{array}$$

Make A Fraction

Remainder = Numerator

Divisor = Denominator

$$\begin{array}{r} 4 \frac{1}{2} \\ 2 \overline{) 9} \\ \underline{-8} \\ 1 \end{array}$$

Make A Decimal

Add decimal points.
Add zero to rain down.

$$\begin{array}{r} 4.5 \\ 2 \overline{) 9.0} \\ \underline{-8} \\ 10 \\ \underline{-10} \\ 0 \end{array}$$

$$\begin{array}{r} 106 \\ 6 \overline{) 636} \\ \underline{-6} \\ 03 \\ \underline{-0} \\ 36 \\ \underline{-36} \\ 0 \end{array}$$

Trap!

Not enough rain.
6-tablet dissolves into 03 zero times.

Tip!

Wait for more rain.

Shortcuts

Use a double underline if there's no remainder.

Imagine tablets, liquids, and gold pots, drawing only arcs and rain. Or imagine everything and write just numbers.

ROUND & ESTIMATE

To improve guesses.

$$18 \overline{) 59}$$

- Round 18 to 20.
- Round 59 to 60.
- 20 into 60 = 3.

- Guess 3.

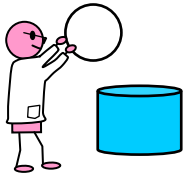
$$\begin{array}{r} 3 \\ 18 \overline{) 59} \\ \underline{-54} \\ 5 \end{array}$$

This saves a lot of trial & error.

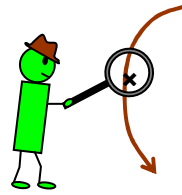
Rainbow Division FunSheet

Divide, Multiply, Subtract, and Rain to make beautiful Rainbows.

Division Dietrich guesses how many times a tablet dissolves into a liquid.



Multiplication Morris tests guesses and creates rainbow arcs.



Subtraction Sam steals to see how much liquid remains.



Rain increases the remaining liquid.

Draw tablets, liquids, rainbow arcs, gold pots, and rain. Use R for Remainders.

1) $4 \overline{) 96}$

2) $5 \overline{) 48}$

3) $7 \overline{) 712}$

Trap!
Not enough liquid in first digit.
Tip!
Enlarge the container.

Trap!
Not enough rain.
Tip!
Wait for more.

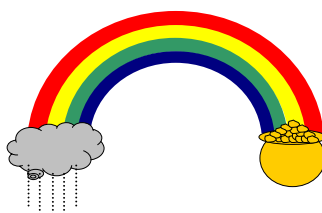
Draw rainbow arcs and rain or just numbers if desired. Make remainders into *Fractions*.

4) $12 \overline{) 787}$

5) $45 \overline{) 5473}$

6) $256 \overline{) 6400}$

Tips
For 1st guess, round 256 to 300 and 640 to 600.
Test 2nd guess on the side first.



Ans: 1) 24 2) 9 R3 3) 101 R5 4) 65 7/12 5) 121 28/45 6) 25