



- 1) $10 + 13 = 23$
- 2) $44 - 11 = 33$
- 3) $\frac{1}{2}$ Of 22 = 11
- 4) $7\,000 \div 10 = 700$
- 5) $50 \div 5 = 10$
- 6) $13 \times 10 = 130$
- 7) $60 \times 2 = 120$
- 8) $9 \times 25 = 225$
- 9) $909 \div 3 = 303$
- 10) $125 \div 25 = 5$

How do you know?

- | | | |
|---------|--------|--------|
| a) 90 | b) 134 | c) 395 |
| d) 1724 | e) 30 | f) 560 |
| g) 3015 | h) 74 | i) 748 |

2. Write a 5-digit number that is divisible by 8.
How did you choose the number?
3. A number is missing the tens digit.
The number is 51 3□6.
What could the tens digit be if the number
is divisible by 2? By 4? By 8?
4. Which numbers are divisible by 4? By 8? By 10?
How do you know?
a) 80 b) 216 c) 132
d) 350 e) 2160 f) 2092



5. Andrew and Matthew discuss divisibility.
Andrew says, "280 is divisible by 5 and by 8.
 $5 \times 8 = 40$, so 280 is also divisible by 40."
Matthew says, "296 is divisible by 4 and by 8.
 $4 \times 8 = 32$, so 296 is also divisible by 32."
Are both Andrew and Matthew correct?
Explain your thinking.
6. Explain why a number with 0 in the ones place is divisible by 5

Pass in to me ☺

7. Use the digits 0 to 9. Replace the \square in each number to make a number divisible by 4. Find as many answers as you can.

a) $822\square$

b) $2114\square8$

c) $15\square32$

8. **Take It Further** A leap year occurs every 4 years.

The years 1992 and 2004 were leap years.

What do you notice about these numbers?

Was 1964 a leap year? 1852? 1788? Explain.

yes
7.a) 8220
 8228
 8224

i. by 4 - 1. by 4
b) 211428
 211448
 211468
 211488
 211408

c) 0-9
can fit.
They all end in
2, 4, 8 in
multiples
of 4

Explore



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Use a calculator.

- Choose 10 different numbers.
Divide each number by 0.
What do you notice?
What do you think this means?

- Choose 15 consecutive 2-digit numbers.
Divide each number by 3 and by 9.
Repeat for 15 consecutive 3-digit numbers.

List the numbers that were divisible by 3 and by 9.
Find the sum of the digits of each number.
What do you notice?

- Choose 4 different 4-digit numbers you think are divisible by 3 and by 9.
Divide each number by 3 and by 9 to check.
Add the digits in each number. What do you notice?

- Draw this Venn diagram.
Sort these numbers.

12 21 42 56 88 135 246 453 728
What can you say about the numbers
in the overlapping region?



Div. by 3

30

$$3+0=3$$

$$\begin{array}{r} 27 \\ 12+7=9 \end{array}$$

Please get
1 white
board and
marker for
your table

1437

$$\begin{array}{r} 25 \\ 2+5=7 \end{array}$$

$$1+4+3+7$$

28

$$2+8=10$$

Div. by 9

45

$$4+5=9$$

27

$$2+7=9$$

1463

$$6 + 6 + 9 + 6 = 27$$

$$7 + 7 + 3 + 6 = 18$$

$$2 + 4 + 7 + 5 = 18$$

$$9 + 9 + 9 + 9 = 36$$

$$6 + 6 + 6 + 9 = 27$$

Divisibility Rules

A whole number is divisible by:

- 2 if the number is even
- 3 if the sum of the digits is divisible by 3
- 4 if the number represented by the last 2 digits is divisible by 4
- 5 if the ones digit is 0 or 5
- 6 if the number is divisible by 2 and by 3
- 8 if the number represented by the last 3 digits is divisible by 8
- 9 if the sum of the digits is divisible by 9
- 10 if the ones digit is 0

Divisibility for 9

The sum of the digits are divisible by 9 (9 can go in to the sum).

$$\text{ex. } 27 = 2 + 7 = 9$$

p. 12 ques. 1
p. 13 ques. 8

Practice

1. Which numbers are divisible by 3? By 9? How do you know?

- a) 117 b) 216 c) 4125 d) 726 e) 8217 f) 12 024

8. Use the digits 0 to 9.

Replace the \square in each number to make a number divisible by 3.

Find as many answers as you can.

- a) $4\square6$ b) $1\square32$ c) $24\,71\square$

