Name: $\qquad$ Date: $\qquad$
Identify the Prime Numbers from 1 to 50
A reduce fractions to lowest term exercise

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

## Cross through number procedure:

1. Eliminate 1
2. Eliminate even numbers of 2
3. Eliminate multiples of 3 above 3
4. Eliminate multiples of 5 above 5
5. Eliminate multiples of 7 above 7

List the set of prime numbers from 1 to 50 :
$\{$

## Find the Prime Factors of Any Number

We can express any whole number as a factor of prime numbers. For example, we can take 24 and factor it.

$$
\begin{gathered}
24=2 \times 12 \\
2 \times 12=2 \times 2 \times 6 \\
2 \times 2 \times 6=2 \times 2 \times 2 \times 3
\end{gathered}
$$

So 24 can be represented as $2 \times 2 \times 2 \times 3$ or $2^{3} \times 3$. This will be useful when reducing a fractions to lowest terms,

## Vet Tech Mathematics

World Class CAD Challenge: Find the prime factors of these numbers.

| 1 | 36 | 2 | 49 |
| :---: | :---: | :---: | :---: |
| 3 | 52 | 4 | 72 |
| 5 | 86 | 6 | 64 |
| 7 | 144 | 8 | 176 |
| 9 | 314 | 10 | 254 |

## Reduce a Fraction to Lowest Terms

From the procedure we just learned, we can convert the numerator and denominator to prime numbers.

$$
\begin{array}{cc} 
& \frac{48}{216} \\
& \\
48=2 \times 24 & 216=2 \times 108 \\
48=2 \times 2 \times 12 & 216=2 \times 2 \times 54 \\
48=2 \times 2 \times 2 \times 6 & 216=2 \times 2 \times 2 \times 27 \\
48=2 \times 2 \times 2 \times 2 \times 3 & 216=2 \times 2 \times 2 \times 3 \times 9 \\
& 216=2 \times 2 \times 2 \times 3 \times 3 \times 3
\end{array}
$$

So we can rewrite the fraction as:

$$
\frac{2 \times 2 \times 2 \times 2 \times 3}{2 \times 2 \times 2 \times 3 \times 3 \times 3}
$$

And we can cross out like terms:

$$
\frac{8 \times 8 \times 8 \times 2 \times 8}{8 \times 8 \times 8 \times 3 \times 3 \times 3}
$$

We reduce the fraction to:

## $\frac{2}{9}$

How can we use dividing the numerator by the denominator to check our work?

| $\frac{48}{216}$ | $\frac{2}{9}$ |
| :--- | :--- |
|  |  |

## Vet Tech Mathematics

World Class CAD Challenge 25-6: Find the lowest terms of these fractions using prime numbers.

| $\frac{42}{92}$ |
| :--- | :--- |
| $\frac{8}{84}$ |
| $\frac{27}{63}$ |
| $\frac{312}{524}$ |
| 135 |

