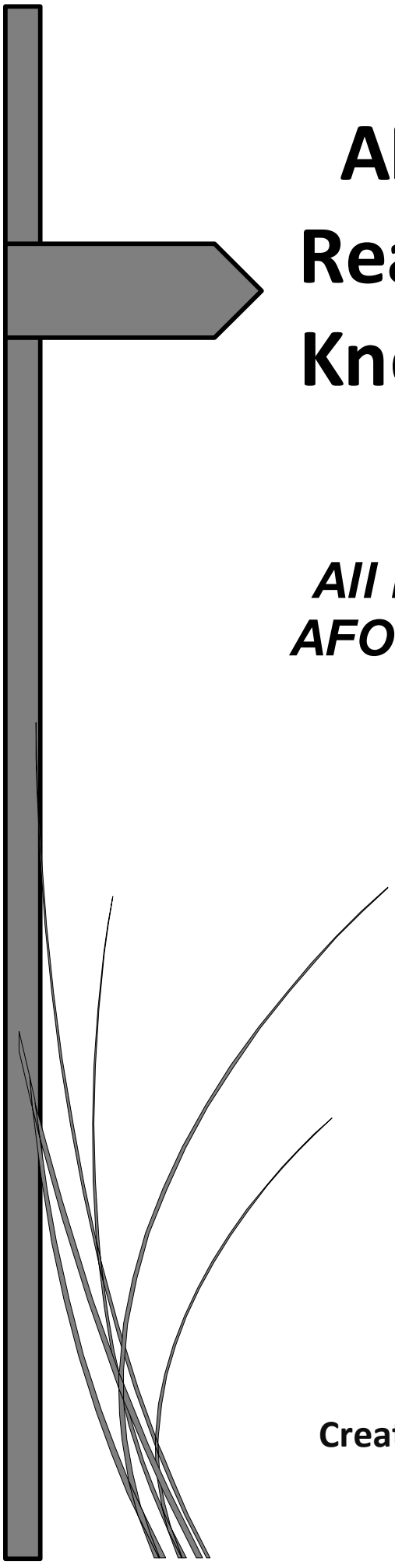

AFOQT Arithmetic Reasoning and Math Knowledge Formulas

All Mathematics Formulas an AFOQT Test Taker Must Know!

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Taking the AFOQT test with only a few weeks or even few days to study?

First and foremost, you should understand that the 2019 AFOQT test does not provide a list of all basic formulas that will be required to know for the test. This means that you will need to be able to recall many math formulas on the AFOQT Arithmetic Reasoning and Mathematics Knowledge subtests.

Below you will find a complete list of all Math formulas you MUST have learned before test day, as well as some explanations for how to use them and what they mean. Keep this list around for a quick reminder when you forget one of the formulas.

Review them all, then take a look at the math topics to begin applying them!

Good luck!

A Quick Review and the List of all AFOQT Mathematics Formulas

Place Value

The value of the place, or position, of a digit in a number.
Example: In 456, the 5 is in "tens" position.

Comparing Numbers Signs

Equal to $=$
Less than $<$
Greater than $>$
Greater than or equal $\geq$
Less than or equal $\leq$

Rounding

Putting a number up or down to the nearest whole number or the nearest hundred, etc.
Example: 64 rounded to the nearest ten is 60, because 64 is closer to 60 than to 70.

Whole Number

The numbers $\{0, 1, 2, 3, \dots\}$

Estimates

Find a number close to the exact answer.

Decimals

Is a fraction written in a special form. For example, instead of writing $\frac{1}{2}$ you can write 0.5.

Factoring Numbers

Factor a number means to break it up into numbers that can be multiplied together to get the original number.
Example: $12 = 2 \times 2 \times 3$

Fractions

A number expressed in the form $\frac{a}{b}$
Adding and Subtracting with the same denominator:

$$\frac{a}{b} + \frac{c}{b} = \frac{a+c}{b}$$

$$\frac{a}{b} - \frac{c}{b} = \frac{a-c}{b}$$

Adding and Subtracting with the different denominator:

$$\frac{a}{b} + \frac{c}{d} = \frac{ad+c}{bd}$$

$$\frac{a}{b} - \frac{c}{d} = \frac{ad-cb}{bd}$$

Multiplying and Dividing Fractions:

$$\frac{a}{b} \times \frac{c}{d} = \frac{a \times c}{b \times \mathrm{d}}$$

$$\frac{a}{b} \div \frac{c}{d} = \frac{\frac{a}{b}}{\frac{c}{d}} = \frac{ad}{bc}$$

Mixed Numbers

A number composed of a whole number and fraction
Example: $2\frac{2}{3}$
Converting between improper fractions and mixed numbers:

$$\mathrm{a}\frac{c}{b} = \mathrm{a} + \frac{c}{b} = \frac{ab+c}{b}$$

Divisibility Rules

Divisibility means that you are able to divide a number evenly.
Example: 24 is divisible by 6, because $24 \div 6 = 4$