04-13-26 MDE 10

5.5 Solving Percent Problems Using Proportions
5.5 Exercise Set, page 365: 1, 5, 9, 15, 57, 65

5.6 Applications of Percent
5.6 Exercise Set, page 375: 1, 5, 19, 33

Chapter 8 - Real Numbers and Introduction to Algebra
8.1 Symbols and Sets of Numbers
8.1 Exercise Set, page 562: 1, 5, 11, 21, 25, 39, 67

8.2 Exponents, Order of Operations, and Variable Expressions
8.2 Exercise Set, page 572: 1, 5, 7, 15, 21, 29, 35, 55, 81, 89

5.6: 33

Solve.

33. Tuition for an Ohio resident at the Columbus campus of Ohio State University was $8994 in 2010. The tuition increased by 11.6% during the period from 2010 to 2016. Find the increase and the tuition for the 2016–2017 school year. Round the increase to the nearest whole dollar. (*Source:* Ohio State University)

```
8994*11.6%
                1043.304
8994*11.6*0.01
                1043.304
```

increase ≈ $1043

33. increase: $1043; tuition in 2016–2017: $10,037

```
8994+1043.304
               10037.304
```

2016-2017 tuition ≈ $10,037

5.6: 19

For each food described, find the percent of total calories from fat. If necessary, round to the nearest tenth percent. See Example 2.

19. Ranch dressing serving size of 2 tablespoons

	Calories
Total	40
From fat	20

$40x = 20$

x = % of total calories in fat

$x = \frac{20}{40} = \frac{1}{2} = \left(\frac{1}{2}\right)(1) = \frac{1}{2}(100\%)$

$= 50\%$

$\frac{20 \text{ cal}}{40 \text{ cal}} = \frac{x}{100}$

$\frac{1}{2} = \frac{x}{100}$

$2x = 100$

$x = 50$

$\therefore$ fat calories = 50% total calories

8.1

Memorize

Integers

$\{\ldots, -3, -2, -1, 0, 1, 2, 3, \ldots\}$

Leopold Kronecker

The phrase **"God made the integers; all else is the work of man"** is attributed to the mathematician **Leopold Kronecker**. He emphasized the foundational role of integers in mathematics, suggesting that they are a divine creation, while other mathematical constru are human inventions. This quote reflects the importance of whole numbers in the field of mathematics and is also the title of a book edited by **Stephen Hawking**, which compiles significant mathematical works throughout history. Wikiquote +3

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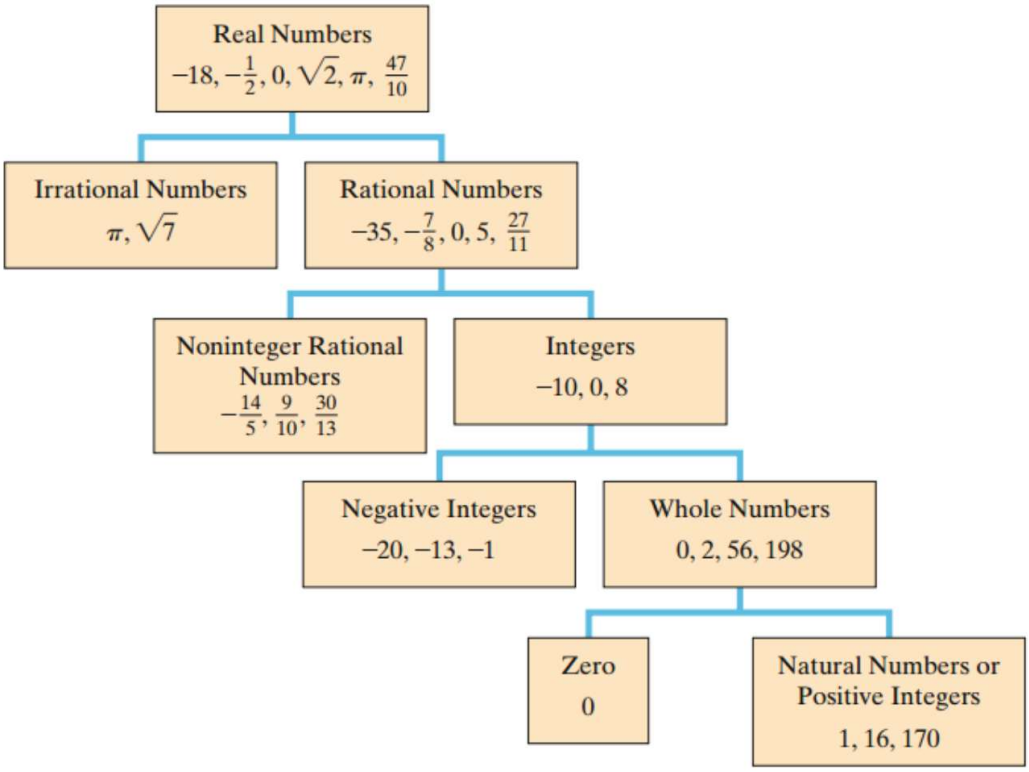
Leopold Kronecker - Wikiquote

stephenhawking.net
God Created the Integers - Stephen Hawking

Rational Numbers

$$\left\{\frac{a}{b}\middle| a \text{ and } b \text{ are integers and } b \neq 0\right\}$$

Memorize



Memorize

Absolute Value

The **absolute value** of a real number a, denoted by $|a|$, is the distance between a and 0 on a number line.

Memorize

Addition (+)	Subtraction (−)	Multiplication (·)	Division (÷)	Equality (=)
Sum	Difference of	Product	Quotient	Equals
Plus	Minus	Times	Divide	Gives
Added to	Subtracted from	Multiply	Into	Is/was/should be
More than	Less than	Twice	Ratio	Yields
Increased by	Decreased by	Of	Divided by	Amounts to
Total	Less			Represents
				Is the same as

Your Name MDE 10 quiz 5 show calculations.

1. What is 5 percent of 20?

$x = 5\left(\frac{1}{100}\right)20$

$= 5\left(\frac{20}{100}\right) = 5\left(\frac{1}{5}\right) = 1$

1 is 5% of 20

2. Give one example of a rational number.

$\frac{1}{4}$

3. Translate $5 > 6$ into words.

Five is greater than six.

4. Is $5 > 6$ true or false? Why?

False
5 is to the left of 6 on the number line
$5 - 6 < 0$ implies five is less than 6

5. Find the least common multiple of 5 and 15.

$15 = 3 \times 5$

$LCM(5, 15) = 3 \times 5 = 15$ or

$5 \times 1 = 5$ $15 \times 1 = 15$
$5 \times 2 = 10$
$5 \times 3 = 15$

6. Convert $\frac{5}{9}$ to a decimal. Round to nearest hundredth.

$9\overline{)5.0\,0\,0}$ $5\,5\,5$ ≈ 0.56

$$
\begin{array}{r}
.5\,5\,5 \\
9\overline{)5.0\,0\,0} \\
\underline{4\,5} \\
5\,0 \\
\underline{4\,5} \\
5\,0 \\
\underline{4\,5} \\
5
\end{array}
\approx \boxed{0.56}
$$

5/9=0.5556 ≈ 0.56