Created by Mr. Lischwe

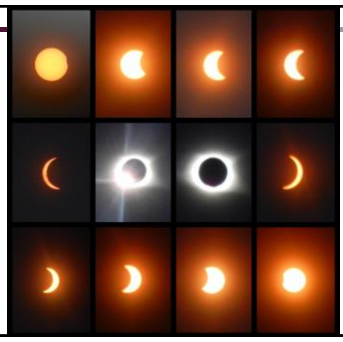
WARMUP $8/|-11-11|$

Start your Week 3 Warmups Page!

1) The partial eclipse yesterday started at 11:58 AM and ended at 2:54 PM. How many minutes long was the eclipse?

Blake converted the fraction $\frac{5}{6}$ into a decimal and got 1.2.

2) Explain how you know Blake's answer is unreasonable.
3) What mistake do you think Blake made that led to this answer?
4) Make an estimate for what you think the actual answer will be.
5) Check your estimate using long division.



PLAN FOR THIS WEEK:

TUESDAY: Finish Fractions & Decimals, Start Roots?
WEDNESDAY: Finding Exact Roots
THURSDAY: Estimating Roots
FRIDAY: Quiz over everything from Unit 1 so far

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What about repeating decimals?

- Convert $0.\overline{2}$ into a fraction.

Let $x = 0.22222\ldots\ldots$
$10x = 2.22222\ldots\ldots$ Multiply both sides by 10.
$-x \quad -0.22222\ldots\ldots$ Take away 1x from both sides.
$\frac{9x}{9} = \frac{2}{9}$ Divide both sides by 9.
$x = \frac{2}{9}$
SO: $0.\overline{2} = \frac{2}{9}$

What about repeating decimals?

- Convert $0.\overline{7}$ into a fraction.

Let $x = 0.77777\ldots\ldots$
$10x = 7.77777\ldots\ldots$ Multiply both sides by 10.
$-x \quad -0.77777\ldots\ldots$ Take away 1x from both sides.
$\frac{9x}{9} = \frac{7}{9}$ Divide both sides by 9.
$x = \frac{7}{9}$
SO: $0.\overline{7} = \frac{7}{9}$

What about repeating decimals?

- Convert $\mathbf{0.\overline{34}}$ into a fraction.

Let $x = \mathbf{0.343434}\ldots\ldots$

$\cancel{10x = \mathbf{3.434343}\ldots\ldots}$ Doesn't work!!!

$100x = \mathbf{34.343434}\ldots\ldots$ Multiply both sides by 100.

$-x \quad -\mathbf{0.343434}\ldots\ldots$ Take away 1x from both sides.

$\frac{99x}{99} = \frac{34}{99}$ Divide both sides by 99.

$x = \frac{34}{99}$

SO: $0.\overline{34} = \frac{34}{99}$

Repeating DecimalS: Pattern

$0.\overline{1} = \frac{1}{9}$

$0.\overline{2} = \frac{2}{9}$

$4.\overline{8} = 4\frac{8}{9}$

etc.

$0.\overline{12} = \frac{12}{99}$

$0.\overline{76} = \frac{76}{99}$

etc.

$0.\overline{706} = \frac{706}{999}$

etc.

PLEASE DO 10–12 ON THE HOMEWORK!!!

AN ADDITIONAL NOTE ABOUT CHECKING HOMEWORK…

- If you make a very tiny mistake, you are allowed to take of a half of a point.

P.11 (1 – 15)

1. 0.4
2. 2.125
3. 0.825
4. $0.\overline{12}$
5. $-0.\overline{54}$
6. $-7.1\overline{7}$
7. a. $0.0\overline{6}$ b. $0.1\overline{6}$ c. 0.333 d. 0.417
8. $-\frac{2}{5}$ (Count these as 4 separate problems)
9. $-7\frac{8}{25}$
10. $\frac{2}{9}$
11. $-\frac{5}{11}$
12. $2\frac{7}{9}$
13. $5\frac{11}{20}$
14. $\frac{7}{8}$ in, 0.875 in
15. $1\frac{1}{16}$ in, 1.0625 in

COOL MATH PATTERNS…

- $\frac{1}{4} = .25$
- $\frac{2}{4} = .5$
- $\frac{3}{4} = .75$

- $\frac{1}{5} = .2$
- $\frac{2}{5} = .4$
- $\frac{3}{5} = .6$
- $\frac{4}{5} = .8$

- $\frac{1}{6} = .1\overline{6}$
- $\frac{2}{6} = .\overline{3}$
- $\frac{3}{6} = .5$
- $\frac{4}{6} = .\overline{6}$
- $\frac{5}{6} = .8\overline{3}$

COOL MATH PATTERNS…

- $\frac{1}{7} = .\overline{142857}$
- $\frac{2}{7} = .\overline{285714}$
- $\frac{3}{7} = .\overline{428571}$
- $\frac{4}{7} = .\overline{571428}$
- $\frac{5}{7} = .\overline{714285}$
- $\frac{6}{7} = .\overline{857142}$

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Roots (1.8)

Objective:
–Find exact roots of a number

Haven't we learned these before?!?!?!?

- It's true; you have already learned about square roots before. Our goal now is to think more deeply about them.

The **square root** of a number is the number you take times itself to get that number.
For example…

$$\sqrt{9} = \_\_\_$$

Yes, $-3 \cdot -3$ also $= 9$. But the square root is always assumed to be the positive one.

To get the negative root, you would have to write $-\sqrt{9}$.

If you're only multiplying twice, why is it called a SQUARE root? Don't squares have FOUR sides?

Perfect Squares

- Copy in your notes (leave room for more rows):

Square Root	Perfect Square
1	
2	
3	
4	
5	
6	
more rows	