# Created by Mr. Lischwe 

Simplify each expression.

1. $\sqrt{\frac{28}{7}}$
2. $(\sqrt{3})^{2}$
3. $\frac{24 x}{16 x}$
4. Is it possible to do a long division that never ends??? Why or why not?

## Pattern Posters: Gallery Walk

- Grade your Patterns Worksheet by looking at the posters on the walls.
- Find the answers for the \# of units in step 40 on the posters to see if you are correct.
- Compare your step 40 drawing with the posters.
- Compare your expressions with the posters.
***If you have a different expression than the posters, it doesn't necessarily mean you are wrong! You may have just thought of something none of them did. We will discuss it all after.


## Pattern A: Possible Strategies


$2(n+2)+2 n+4$
$4 n+8$
$(n+2)^{2}-n^{2}+4$

## Pattern B: Possible Strategies



## Etc...

(80 rows total)
$n \cdot 2 n$
$n \cdot 2 n$
$(2 n)^{2} \div 2$

## Pattern C: Possible Strategies



41 squares on top


81
$3 \cdot(2 n+1)$
$+(n+1)$


40 "holes"



41 columns of 4 40 columns of 3

$$
4(n+1)+3 n
$$


(40 groups of 7)
$4 \cdot(2 n+1)-n$

$$
7 n+4
$$

## Pattern D: Possible Strategies


41


$(n+1)^{2}-2$
$n^{2}+n+(n-1)$
$(n+1)(n-1)+2 n$

## Pattern E: Possible Strategies



## Pattern F: Possible Strategies



6 seats at all 40 tables, -2 each time 2 tables come together (39 times)

$$
4 n+2
$$

$$
(n-2) \cdot 4+10
$$

$$
6 n-(n-1) \cdot 2
$$

## Pattern G: Possible Strategies



41 squares missing

| $\mathbf{X}$ | $\mathbf{X X X X X X}$ |
| :---: | :---: |
| $42 \times 42$ square |  |
| $\mathbf{X}$ | $\mathbf{X X X X X X}$ |

41 squares missing
$\boldsymbol{n}(\boldsymbol{n}+2)+\mathbf{2} \quad n^{2}+(n+2)+n(\boldsymbol{n}+2)^{2}-2(n+1)$

## Pattern H: Possible Strategies



## Let's review...

- When is a number RATIONAL, and when is it IRRATIONAL???
- ANY FRACTION or ANYTHINGTHAT CAN BE WRITTEN AS A FRACTION is rational.
- Both numbers in the fraction must be integers!!! (So if $\pi$ or $\sqrt{2}$ is in the fraction, for example, it doesn't count!)


## Activity: Treasure Hunt

- Taped around the room are a bunch of cards
- The treasure hunt starts at the dollar sign: "\$"
- Each card will have an expression, and you have to say if it is rational or irrational. Your answer will determine what card you go to next.
- The cards that don't have problems on them have messages on the back.
- If you get all of them right, you will eventually get to the (fake) treasure
- If you get to a card that says something like "Oops, you got struck by a meteor", that means that one of your last two problems is wrong.
- On a piece of paper, keep track of the order of symbols you go to so that you can backtrack!
- NOTE:YOU WILL NOT GOTO EVERY CARD.


## Partner Expectations

- You should never be across the room from each other! Stay together.
- You may not say "It's irrational. Just trust me." If your partner doesn't understand, it is your responsibility to help them!
- Likewise, if you are confused about one, you need to ask your partner about it!
- If you are BOTH confused, you may ask me.
- You only need to speak loud enough for your partner to hear.


## You may start the treasure hunt (it starts at the $\$$ ) when

 you and your partner answer all these correctly!!!| 1. | -8 | Rational $\left(\frac{-8}{1}\right)$ |
| :--- | :--- | :--- |
| 2. | $\frac{65}{76}$ | Rational |
| 3. | $\sqrt{100}$ | Rational $\left(\frac{10}{1}\right)$ |
| 4. | $\sqrt{12}$ | Irrational |
| 5. | $4 \pi$ | Irrational |
| 6. | 3.6782364 | Rational $\left(3 \frac{6782364}{1000000}\right)$ |
| 7. | $7.1487254557 \ldots$ | Irrational |
| 8. | $4.33333 \ldots$. | Rational $\left(4 \frac{1}{3}\right)$ |
| 9. | $2 . \overline{08}$ | Rational $\left(4 \frac{8}{99}\right)$ |
| 10. | $\frac{3 \sqrt{2}}{4 \sqrt{2}}$ | Rational $\left(\frac{3}{4}\right)$ |
| 11. | $\sqrt[3]{30}$ | Irrational |

## Treasure Hunt

- If you missed one, ONE OFYOUR LASTTWO PROBLEMS IS WRONG.
- Stay with your partner! Help each other understand.
- Do not look behind random cards please!!!
- EARLY FINISHERS:You may start on the Unit 1 Review Sheet (Due Wednesday)

