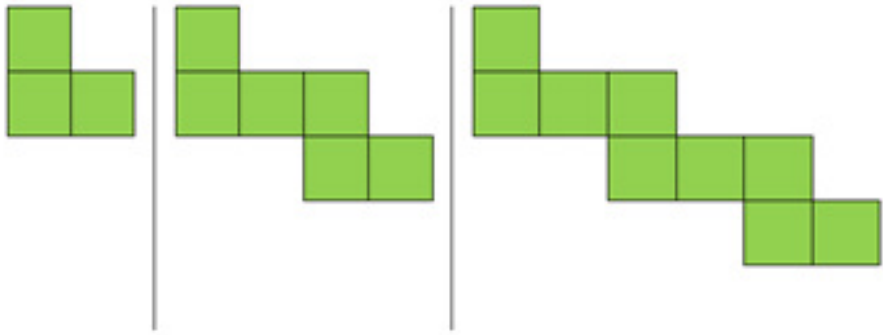
# Warmup 10/ (The number of "Knuts" in a "Sickle" in the Harry Potter books)



1) Sketch step 25:

2) Complete the table:

| Step number (n) | 1 | 2 | 3 | 4 | 5 | 25 |
|---|---|---|---|---|---|---|
| Number of squares (s) | | | | | | |

3) Write an equation:

# Going over the Quiz

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# Discuss with your table

- How would you simplify these four to have ONE base and ONE exponent?

1. $6^3 \cdot 6^{14}$
2. $h^8 \cdot h^{10}$
3. $\frac{2^5}{2^3}$
4. $\frac{x^6}{x^3}$

# The Rules…

**Multiplying Powers with the same base**

- Keep the base, add the exponents

**Dividing Powers with the same base**

- Keep the base, subtract the exponents

**NOTE: THESE ARE JUST "SHORTCUTS". THE FOOLPROOF METHOD IS TO EXPAND THEM OUT!!!**

# Try it with numbers…

$$2^3 \cdot 2^2$$

$$\frac{2^6}{2^3}$$

# Examples: Multiplying

1. $a^{45} \cdot a^{22}$
2. $6^{5} \cdot 6^{3}$
3. $x^{3} \cdot y^{5} \cdot y^{2} \cdot x$
4. $12j^{5} \cdot 3j^{2}$
5. $(7a^{5})(4a^{3})$

# Examples: Multiplying

1. $a^{45} \cdot a^{22}$

$a^{67}$

2. $6^5 \cdot 6^3$

$6^8$

3. $x^3 \cdot y^5 \cdot y^2 \cdot x$

$x^4 \cdot y^7$

4. $12j^5 \cdot 3j^2$

$12 \cdot j \cdot j \cdot j \cdot j \cdot j \cdot 3 \cdot j \cdot j$
$= 36j^7$

5. $(7a^5)(4a^3)$

$28a^8$

# Examples: Dividing

1. $\frac{a^{45}}{a^{22}}$
2. $\frac{6^5}{6^3}$
3. $\frac{x^3y^5}{xy^2}$
4. $\frac{12j^5}{3j^2}$
5. $\frac{5p^7}{25p^2}$

# Examples: Dividing

1. $\frac{a^{45}}{a^{22}}$ $a^{23}$
2. $\frac{6^5}{6^3}$ $6^2$
3. $\frac{x^3y^5}{xy^2}$ $x^2 \cdot y^3$
4. $\frac{12j^5}{3j^2}$ $4j^3$
5. $\frac{5p^7}{25p^2}$ $\frac{p^5}{5}$

# Bonus Problem

# More Practice: Guided Notes