

# Dr. Taylor's Pedagogical Notes

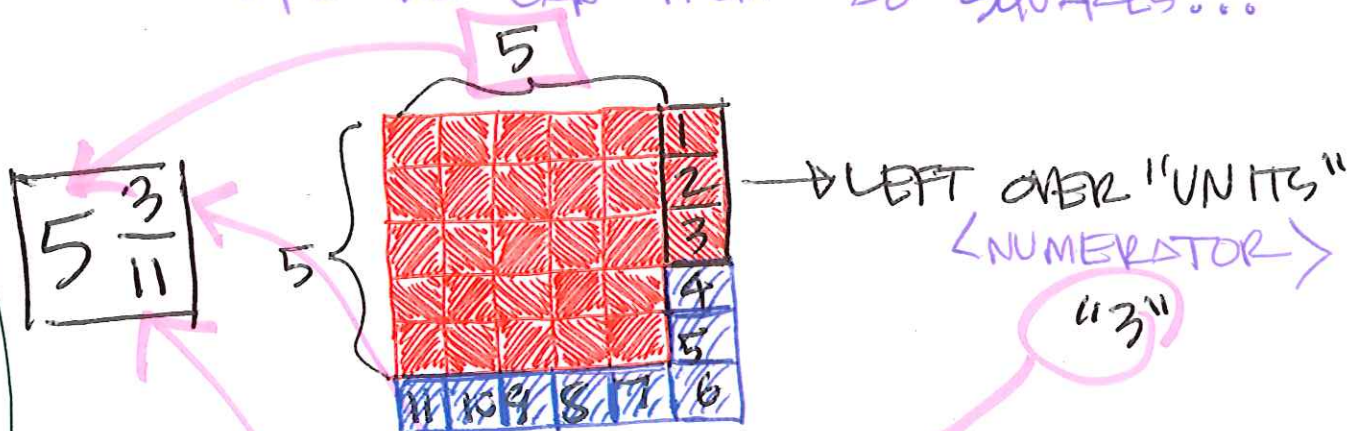
## — ESTIMATING SQUARE ROOTS —

How many is  $\sqrt{28}$

WE SHALL LOOK AT MULTIPLE STRATEGIES WHICH MOVE FROM CONCRETE TO ABSTRACT

### ① COLORED SQUARES

→ FIRST WE SHALL MAKE THE "SQUAREST" SHAPE WE CAN FROM "28" SQUARES...



→ NEXT WE "FILL IN" TO COMPLETE THE NEXT LARGEST SQUARE (IN THIS CASE IT WILL BE 6x6) USING A DIFFERENT COLOR SQUARES.

→ FINALLY WE "COUNT" HOW MANY TOTAL SQUARES IT TOOK TO MAKE THE EXTRA ROW & COLUMN <DENOMINATOR> "11"

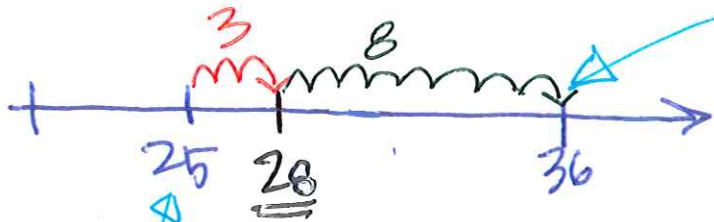
### ② AREA MODEL <SAME>

GRAPHICAL  
CONCRETE

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√28 CONTINUED...

## ③ NUMBER LINE



NEXT CLOSEST PERFECT SQUARE

NEXT CLOSEST PERFECT SQUARE

- SINCE "25" IS LESS THAN "28" I CHOSE  $\sqrt{25} = \underline{5}$
- THEN I "INTERPOLATE" BY COUNTING DISTANCE FROM  
 $25 \rightarrow 28 = 3$   
 $28 \rightarrow 36 = 8$  }  $3 + 8 = \underline{11}$
- FINALLY I CREATE THE FRACTIONAL PART  $\frac{3}{11}$  AND ADD IT TO  $\sqrt{25} = 5 \dots$

SYMBOLIC

$$5 \frac{3}{11}$$

FINAL ANSWER

## ④ NUMERACY —

SAME AS ABOVE ONLY DONE METALLICALLY.

NUMERACY