Warmup

① Multiply $(3x\sqrt{2}-1)(x\sqrt{3}+7)$

	$3x\sqrt{2}$	-1
$x\sqrt{3}$	$3x^2\sqrt{6}$	$-x\sqrt{3}$
7	$21x\sqrt{2}$	-7

$$3x^2\sqrt{6}-x\sqrt{3}+21x\sqrt{2}-7$$

② Convert 45 yds/min to inches/sec

$$\frac{45\text{yds}}{1\text{min}}\cdot\frac{1\text{min}}{60\text{sec}}\cdot\frac{3\text{ft}}{1\text{yd}}\cdot\frac{12\text{in}}{1\text{ft}}$$

$$= 27\ \text{in/sec}$$

③ Simplify $(4x^2-10x)-3x(x+4)$

$$4x^2-10x-3x^2-12x$$

$$x^2-22x$$

Module 0.10
Relationships Between Quantities & Expressions

Name:

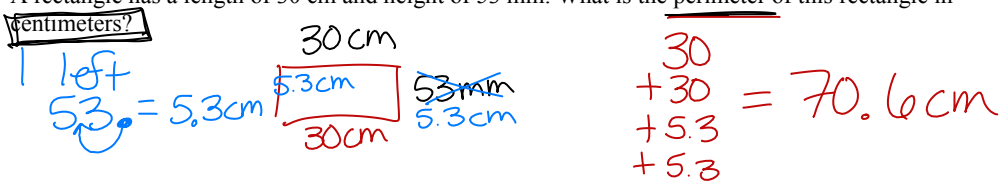
How would you define perimeter?

Add all sides

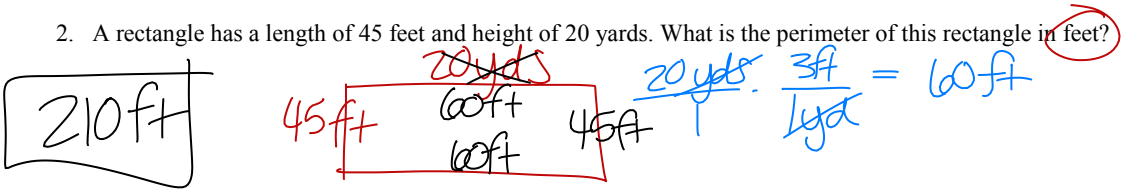
How would you calculate the perimeter of a square?

Add all 4 sides

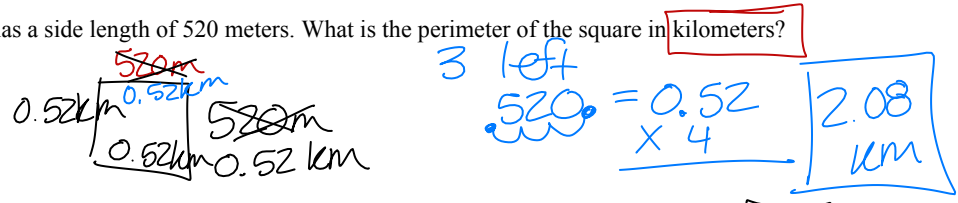
1. A rectangle has a length of 30 cm and height of 53 mm. What is the perimeter of this rectangle in centimeters?



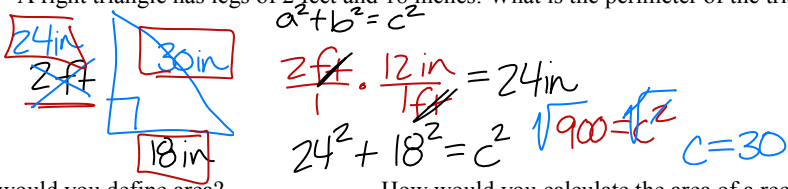
2. A rectangle has a length of 45 feet and height of 20 yards. What is the perimeter of this rectangle in feet?



3. A square has a side length of 520 meters. What is the perimeter of the square in kilometers?



4. A right triangle has legs of 2 feet and 18 inches. What is the perimeter of the triangle in inches?



How would you define area?

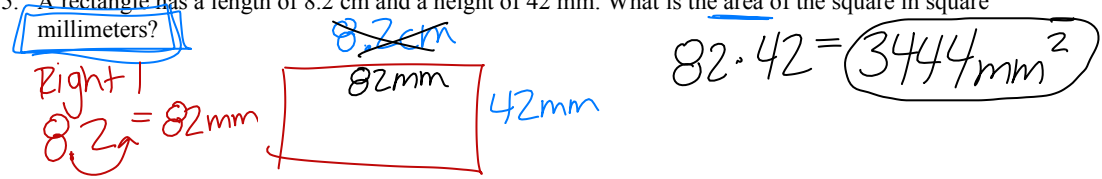
Multiply

How would you calculate the area of a rectangle? A triangle?

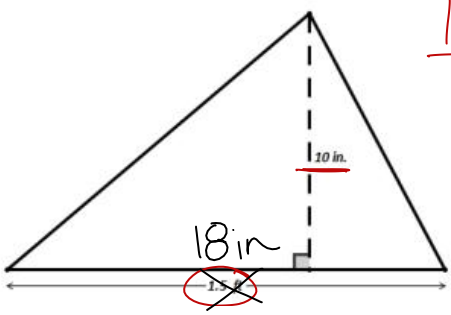
l·w

$\frac{1}{2}bh$

5. A rectangle has a length of 8.2 cm and a height of 42 mm. What is the area of the square in square millimeters?



6. Find the area of the triangle shown below in square inches. $\frac{1}{2}bh$

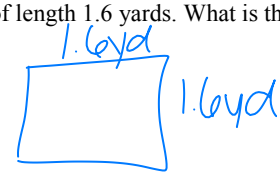


$\frac{1.5ft}{1} \cdot \frac{12in}{1ft} = 18in$

$\frac{1}{2}bh \quad \frac{1}{2}(18)(10)$

$90in^2$

7. A square has a side of length 1.6 yards. What is the area of the square in square inches?

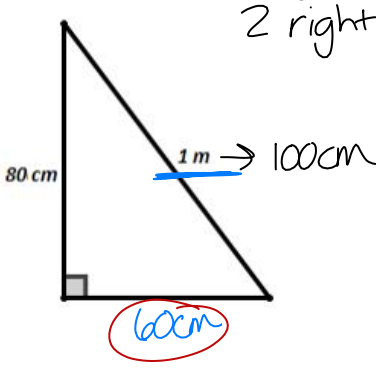


$\frac{1.6yd}{1} \cdot \frac{3ft}{1yd} \cdot \frac{12in}{1ft} = 57.6in$

$\times 57.6$

$3317.76in^2$

8. Find the area of the triangle shown below in square centimeters.



2 right

$a^2+b^2=c^2$

$80^2+b^2=100^2$

$-80^2 \quad -80^2$

$b^2=100^2-80^2$

$\sqrt{b^2}=\sqrt{3600}$

$b=60$

$\frac{1}{2}bh$

$\frac{1}{2}(60)(80)$

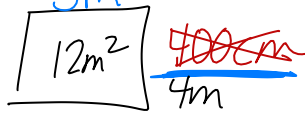
$2400cm^2$

9. A rectangle has an area of $12m^2$ and a length of 400 cm. What is the width of the rectangle?

a. 3 cm b. 30 cm c. 300 cm d. 3000 cm

$3m \rightarrow 2$ right

$300 = 300cm$



400cm

2 left

4m

10. The length of a football field is 100 yards. Which of the following would be equivalent (the same) to the length of a football field?

a. 300 feet b. 100 meters c. 9,144 cm d. 914.4 cm e. 10,000 cm

$3ft = 1yd$

$1in = 2.54cm$

$\frac{300ft}{1} \cdot \frac{12in}{1ft} \cdot \frac{2.54cm}{1in} = 9144cm$

$91.44m$