

6th Pre-Algebra: How do we use area and perimeter?

Warm-up: Solve the following problem

Claire has 38 yards of material to make costumes for the school play. She needs $2\frac{3}{8}$ yards for each costume. How many costumes can she make? How much more material would she need if she wanted to make 20 costumes?

$38 \div 2\frac{3}{8} = 38 \div \frac{19}{8} = 38 \cdot \frac{8}{19} = 16$
 Claire can make 16 costumes.
 Claire will need $9\frac{1}{2}$ more yds of material to make 20 costumes.

(total material) - (yds needed for each costume) = (total yds she has)
 $2\frac{3}{8}(20) - 38$
 $\frac{19}{8} \cdot \frac{20}{1} - 38$
 $47\frac{1}{2} - 38$
 $9\frac{1}{2}$ yds.

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6th Pre-Algebra: How do we use area and perimeter?

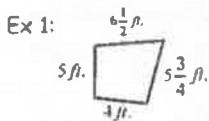
Perimeter: \Rightarrow The distance around an object in linear units. Ex: Feet, Inches, Meters

Area: \Rightarrow The covering of an object in square unit. Ex: sq. ft., sq. m.

Volume: \Rightarrow The number of cubic units it takes to fill an object. Ex: cu. ft., cu. m.

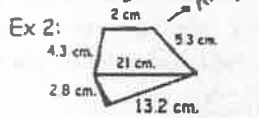
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Find the perimeter of the following.



$P = 5 + 6\frac{1}{2} + 5\frac{3}{4} + 4$

$P = 21\frac{1}{4}$ ft



$P = 2 + 5.3 + 13.2 + 2.8 + 4.3$

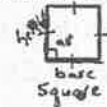
$P = 27.6$ cm

$P = 27.6$ cm linear unit

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Area of Parallelograms and Triangles

Parallelogram: \star A quadrilateral that has 2 sets of parallel sides.




Rhombus equal sides

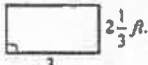
Height: Is perpendicular to the base. 90°

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To find the Area of a Parallelogram use:

Area = $\overbrace{\text{base} \times \text{height}}^{20^\circ}$



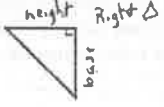
Ex 3:  $A = bh$
 $A = 10(4)$
 $A = 40 \text{ sq. m}$

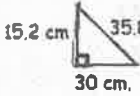
Ex 4:  $A = bh$
 $A = (5\frac{3}{4})(2\frac{1}{3})$
 $A = \frac{23}{4} \cdot \frac{7}{3}$
 $A = \frac{161}{12}$
 $A = 13\frac{5}{12} \text{ sq. ft}$

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To find the Area of a Triangle use:  $A = \frac{1}{2}bh$

Area = $\frac{1}{2}$ base x height

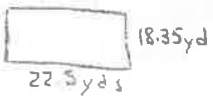
Acute Isosceles   

Ex:  $A = \frac{1}{2}bh$
 $A = \frac{1}{2}(30)(15.2)$
 $A = 228 \text{ sq. cm}$

4560
 456
 200
 3

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Ex 6: Jimbo wants to build a fence around his pool. If his pool area is 22.5 yds by 18.35 yards, how much fencing will Jimbo need?



? fencing (Perimeter)

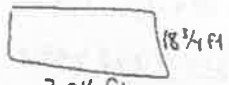
$P = 2(b+h)$
 $P = 2(22.5 + 18.35)$
 $P = 2(40.85)$
 $P = 81.7 \text{ yds}$

Jimbo needs 81.7 yds of fencing

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Ex 7: May wants to paint her bedroom wall purple metallic. May has a wall that is $20\frac{1}{2}$ feet by $18\frac{3}{4}$ feet. How much paint will she need to cover the wall?

? How much paint needed to cover



$A = bh$
 $A = 20\frac{1}{2}(18\frac{3}{4})$
 $A = \frac{41}{2} \cdot \frac{75}{4}$
 $A = \frac{3075}{8}$
 $A = 384\frac{3}{8} \text{ sq. ft.}$

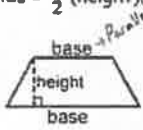
May will need $384\frac{3}{8}$ sq ft of paint

$\frac{41}{2} \cdot \frac{75}{4}$
 $\frac{3075}{8}$
 $384\frac{3}{8}$

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Trapezoids are quadrilaterals that have one set of parallel sides.

$$\text{Area of Trapezoids} = \frac{1}{2} (\text{height})(\text{sum of the two bases})$$



$$A_{\text{Trapezoid}} = \frac{1}{2} h(b_1 + b_2)$$

EX 8:



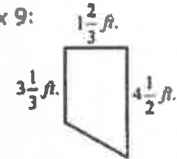
$$A = \frac{1}{2} h(b_1 + b_2)$$

$$A = \frac{1}{2} (4) (45 + 12.3)$$

$$A = \frac{1}{2} (4) (16.8)$$

$$A = 33.6 \text{ sq m}$$

Ex 9:



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