

FIND THE EXACT VALUE:

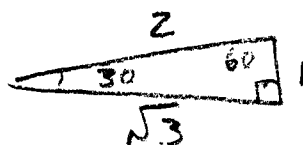
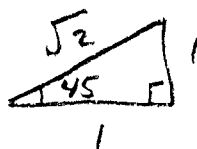
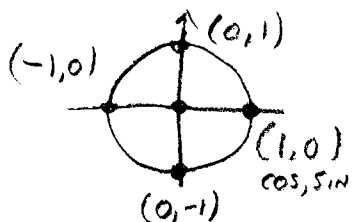
① $\sin 180^\circ$ ② $\cos 30^\circ$ ③ $\tan 135^\circ$

FIND THE APPROXIMATE VALUE (to nearest thousandth)

④ $\cos 35^\circ$ ⑤ $\sin 280^\circ$

Solve:

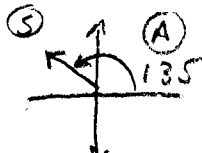
⑥ $2x^2 - 3x - 25 = -5$



① $\sin 180^\circ = 0$

② $\cos 30^\circ = \frac{\sqrt{3}}{2}$

③ $\tan 135^\circ \Rightarrow$

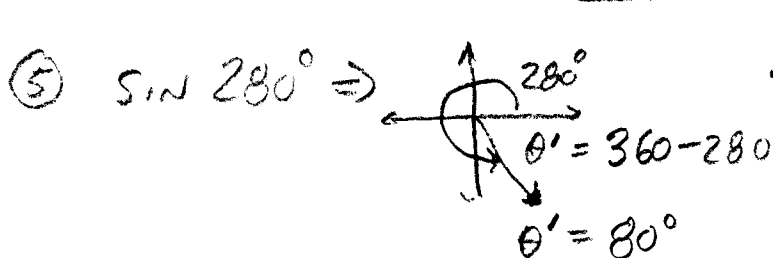


$\tan 45^\circ = 1$

$\theta' = 180 - 135 = 45^\circ$

$\tan 135^\circ = -1$

④ $\cos 35^\circ = .8192 = \boxed{.819}$



$\therefore \sin 280^\circ = -\sin 80^\circ$
 $= -.9848$
 $= \boxed{-.985}$

BE $\Rightarrow$ ANSWERS

$$\textcircled{6} \quad 2x^2 - 3x - 25 = -5$$

$\quad \quad \quad +5 \quad \quad +5$

$$2x^2 - 3x - 20 = 0$$

$$a=2 \quad b^2 - 4ac$$

$$b=-3$$

$$c=-20$$

$$(-3)^2 - 4(2)(-20)$$

$$9 + 160 = 169 = d$$

Perfect Sq.
 $\Rightarrow$ Factorable
Sum = -3
Prod = -40
 $\swarrow \searrow$
+5 -8

$$x = \frac{-b \pm \sqrt{d}}{2a} = \frac{+3 \pm \sqrt{169}}{2(2)} = \frac{+3 \pm 13}{4}$$

$$x = \frac{16}{4}, \frac{-10}{4} \quad \therefore x = \left\{ -\frac{5}{2}, 4 \right\}$$

CK
 $x = -\frac{5}{2}$

$$2\left(-\frac{5}{2}\right)^2 - 3\left(-\frac{5}{2}\right) - 25 \stackrel{?}{=} -5$$
$$2\left(\frac{25}{4}\right) + \frac{15}{2} - 25 \stackrel{?}{=} -5$$

$\downarrow \quad \downarrow$

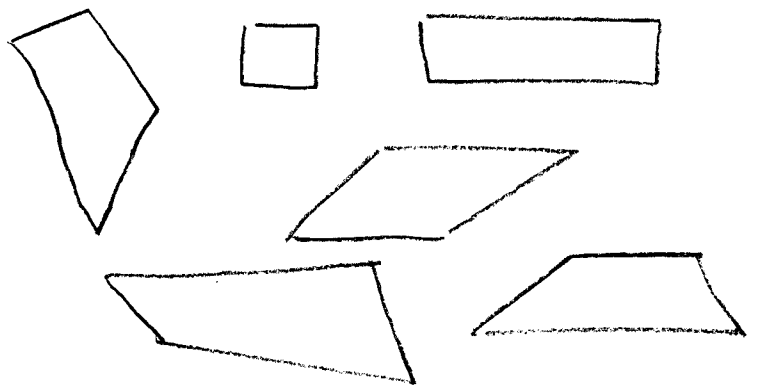
$$\frac{40}{2} - \frac{50}{2} \stackrel{?}{=} -5 \quad \checkmark$$

CK
 $x = 4$

$$2(4)^2 - 3(4) - 25 \stackrel{?}{=} -5$$
$$32 - 12 - 25 \stackrel{?}{=} -5 \quad \checkmark$$

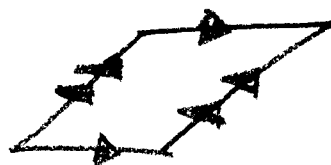
quadrilateral

A 4 sided figure



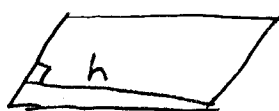
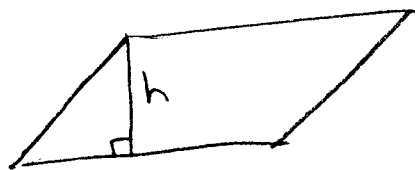
parallelogram

A QUADRILATERAL WITH BOTH PAIRS OF opposite sides parallel.

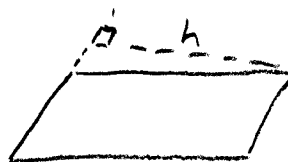


Altitude of
A parallelogram

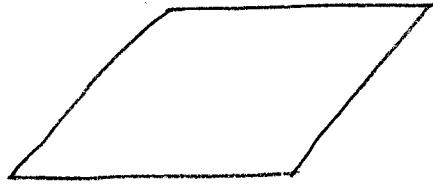
Any perpendicular line segment between A pair of parallel lines. The measure of an altitude is its height.



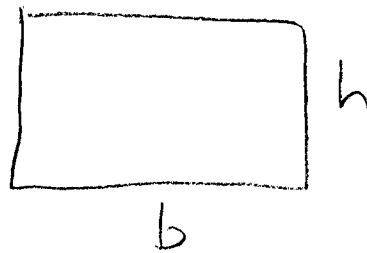
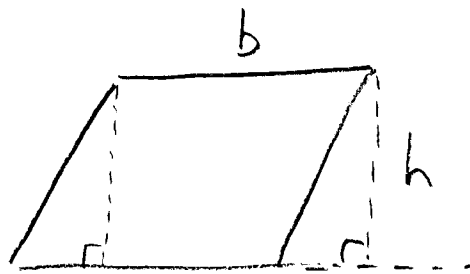
or



Area of A PARALLELOGRAM



Any PARALLELOGRAM can
be formed into AN
EQUIVALENT RECTANGLE



$$A_{\square} = bh$$

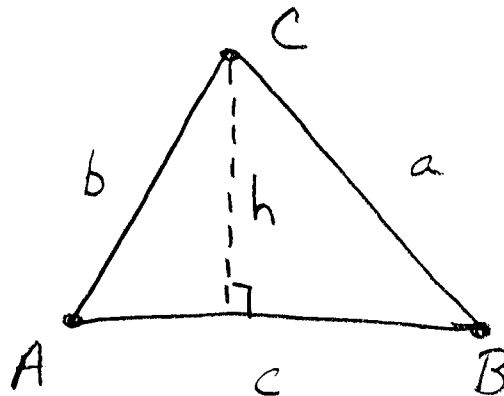
Since any Δ can be made into A
parallelogram by copying it



$$A_{\Delta} = \frac{1}{2}bh$$

There is another important formula for the area of a Δ that uses a trig. function. Let's find it:

Given any ΔABC with an altitude whose measure is h



$$\sin A = ?$$

$$\sin A = \frac{h}{b}$$

$$\therefore b \sin A = h$$

$$\text{But, Area } \Delta ABC = \frac{1}{2} c (h)$$

$$\therefore A_{\Delta} = \frac{1}{2} c (b \sin A) = \frac{1}{2} bc \sin A$$

↑ ↑
product of sin of
two sides angle
 between
 the 2
 sides

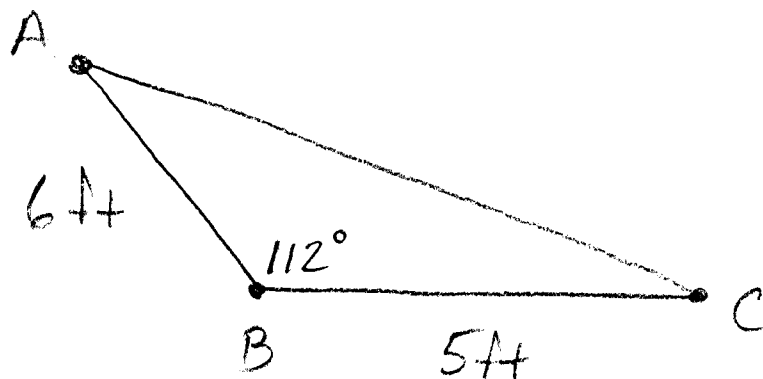
$$A_{\Delta} = \frac{1}{2} bc \sin A$$

$$A_{\Delta} = \frac{1}{2} ac \sin B$$

$$A_{\Delta} = \frac{1}{2} ab \sin C$$

} It is assumed you know this formula on the ACT

ⓔ Find Area of $\triangle ABC$ to nearest tenth



$$\text{Area } \triangle ABC = \frac{1}{2} \cdot 6 \cdot 5 \sin 112^\circ$$

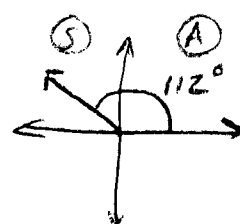
$$= \frac{30}{2} \cdot (\sin 68^\circ)$$

$$= 15(.9272)$$



$$\approx 13.908$$

$$= \boxed{13.9 \text{ ft}^2}$$



$$\theta' = 180 - 112 = 68^\circ$$

↑
UNITS !!!

Practice Problems (class).

Homework: Pg. 608 # 62-67.

Practice Problems: Area of a Triangle Given SAS

Date 11-29-10 Period 2/6**Find the area of each figure. Round your answer to the nearest tenth.**

- 1) A triangle with two sides that measure 3 cm and 6 cm with an included angle of 30° .
- 2) A triangle with two sides that measure 6 ft and 7 ft with an included angle of 41° .
- 3) A triangle with two sides that measure 6 ft and 6 ft with an included angle of 19° .
- 4) A triangle with two sides that measure 2 cm and 5 cm with an included angle of 95° .
- 5) A triangle with two sides that measure 5 in and 6 in with an included angle of 83° .
- 6) A triangle with two sides that measure 2 mi and 5 mi with an included angle of 72° .
- 7) A triangle with two sides that measure 4 in and 5 in with an included angle of 62° .
- 8) A triangle with two sides that measure 7 mi and 4 mi with an included angle of 140° .
- 9) A triangle with two sides that measure 4 km and 4 km with an included angle of 125° .
- 10) A triangle with two sides that measure 6 mi and 3 mi with an included angle of 115° .

Answers to Practice Problems: Area of a Triangle Given SAS

1) 4.5 cm^2

2) 13.8 ft^2

3) 5.9 ft^2

4) 5 cm^2

5) 14.9 in^2

6) 4.8 mi^2

7) 8.8 in^2

8) 9 mi^2

9) 6.6 km^2

10) 8.2 mi^2