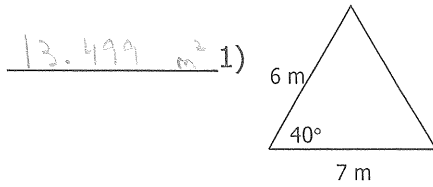
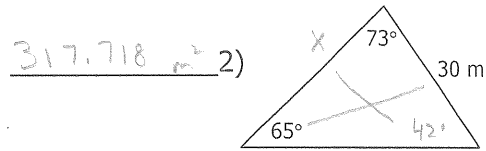


**\*Round to thousandths\***

1-6 Find the **area** of each figure. Show work.



$$\frac{1}{2} (6)(7) \sin 40^\circ$$

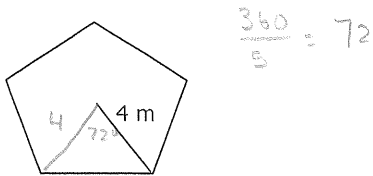


$$\frac{X}{\sin 42^\circ} = \frac{30}{\sin 65^\circ}$$

$$X = 22.149 \text{ m}$$

$$A = \frac{1}{2} (22.149)(30) \sin 73^\circ$$

38.04 m<sup>2</sup> 3) (regular pentagon)



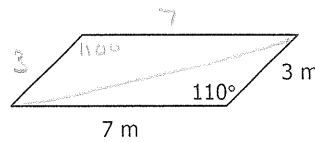
$$\frac{360}{5} = 72$$

$$A = \left[ \frac{1}{2} (4)(4) \sin 72^\circ \right] 5$$

$$= (7.608) 5$$

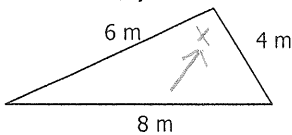
$$= 38.042$$

19.734 m<sup>2</sup> 4) (parallelogram)



$$A = 7(3) \sin 110^\circ$$

11.619 m<sup>2</sup> 5)



$$8^2 = 6^2 + 4^2 - 2(6)(4) \cos X$$

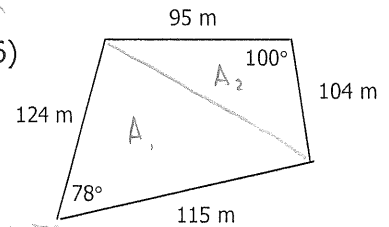
$$64 = 52 - 48 \cos X$$

$$\frac{12}{-48} = -0.25 = \cos X$$

$$75.522^\circ = X$$

$$A = \frac{1}{2} (6)(4) \sin 75.522^\circ$$

11,839.142 m<sup>2</sup> 6)



$$A_1 = \frac{1}{2} (124)(115) \sin 78^\circ$$

$$A_1 = 6974.192 \text{ m}^2$$

$$A_2 = \frac{1}{2} (95)(104) \sin 100^\circ$$

$$A_2 = 4864.950$$

$$A = A_1 + A_2 =$$

\$3190.78 7) A farmer has a triangular field where two sides measure 450 yards and 320 yards. The angle between these two sides measures  $80^\circ$ . The farmer wishes to use an insecticide that costs \$4.50 per 100 sq. yards. What will it cost to use this insecticide on this field?



$$A = \frac{1}{2} (450)(320) \sin 80^\circ = 70,906.158 \text{ yd}^2$$

$$70,906.158 \text{ yd}^2 \left( \frac{\$4.50}{100 \text{ yd}^2} \right) = \$3190.78$$

$.073^\circ$  8) The lengths of two sides of an acute triangle are 30 meters and 26 meters. If the area of the triangle is 300 sq. meters, then what's the measure of the angle between the two given sides?



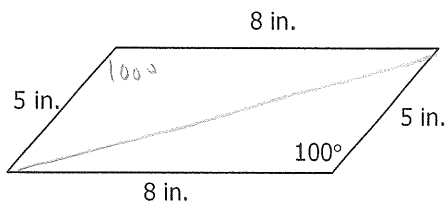
$$300 = \frac{1}{2} (30)(26) \sin x$$

$$300 = 234.390 \sin x$$

$$.00128 = \sin x$$

$$x = .073^\circ$$

293 tiles 9) Samuel has decided to tile his backyard patio. He has chosen to make his design out of parallelograms and has designed the parallelogram pattern shown below. If the patio is 8 ft by 10 ft, then how many tiles will Samuel need to buy?

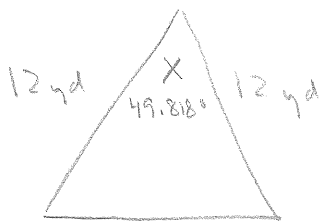


$$A_{\text{Tile}} = (8)(5) \sin 100^\circ = 39.392 \text{ in}^2$$

$$A_{\text{Patio}} = 80 \text{ ft}^2 \left( \frac{12 \text{ in}}{1 \text{ ft}} \right)^2 = 11,520 \text{ in}^2$$

$$\frac{11520}{39.392} = 292.4 \rightarrow 293 \text{ tiles}$$

$49.818^\circ$  10) The Art Guild is painting a mural in the shape of an acute isosceles triangle on  $65.091^\circ$  their building at the State Fair. The equal sides of the triangle will each be 12 yards length, and the area of the triangular mural will be 55 square yards. Find the measure of the three angles of the triangle.



$$55 = \frac{1}{2} (12)(12) \sin x$$

$$\frac{55}{72} = .764 = \sin x$$

$$x = 49.818^\circ$$