

Warm Up

1. Identify the center and the radius of the following circle: $(x - 3)^2 + (y + 8)^2 = 121$

Center $(3, -8)$ $r = 11$

2. Solve the following by completing the square:

$$x^2 + 14x - 8 = 0$$

$(x+7)^2 = 57$

3. Simplify: $(5 + 2i) - (4 + 8i) = \boxed{1 - 6i}$

4. Evaluate $\sin 120^\circ$

5. Identify the amplitude and the period of the following: $y = 4\sin 3x$

amp = 4 $p = \frac{2\pi}{3}$

6. Simplify: $\sin x + \cot x \cos x$

ACT Question of the Day

31. To make a 750-piece jigsaw puzzle more challenging, a puzzle company includes 5 extra pieces in the box along with the 750 pieces, and those 5 extra pieces do not fit anywhere in the puzzle. If you buy such a puzzle box, break the seal on the box, and immediately select 1 piece at random, what is the probability that it will be 1 of the extra pieces?

A. $\frac{1}{5}$

B. $\frac{1}{755}$

C. $\frac{1}{750}$

D. $\frac{5}{755}$

E. $\frac{5}{750}$

Player/ Coach

1. Solve the following by completing the square:

$$x^2 + 2x + 7 = 0$$

2. Solve the following using the quadratic formula:

$$3x^2 + 5x + 5 = 0$$

3. Identify the number and type of solutions of the following quadratic: $y = 5x^2 + 12x + 20$

4. Simplify: $\cot x \sec x$

5. Simplify: $\tan x + \cot x$

6. $(1 - \cos x)(1 + \cos x)$

7. Identify the amplitude and period of the following:
 $y = 0.5\sin 8x$

8. Identify the center and the radius of the following circle: $x^2 + 4x + y^2 + 12y = 9$

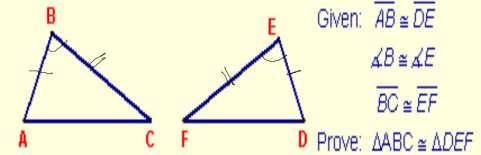
9. For what value of b would the following be true?
 $(x + 5)(x - 9) = x^2 + bx - 45$

How to write proofs:

Statements Reasons

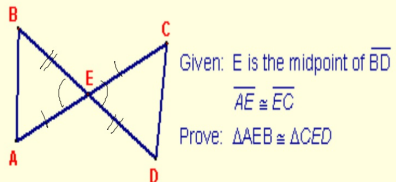
Always right your given statements first

1.



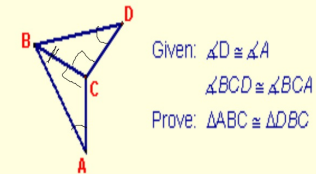
Method	Statements	Reasons
???	1. $\overline{AB} \cong \overline{DE}$	Reason given
???	2. $\angle B \cong \angle E$	Reason given
???	3. $\overline{BC} \cong \overline{EF}$	Reason given
	4. $\triangle ABC \cong \triangle DEF$	Method for Congruent Triangles SAS

2.



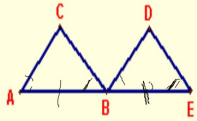
Method	Statements	Reasons
???	1. $\overline{BE} \cong \overline{ED}$	def of midpoint. Reason
???	2. $\angle BEA \cong \angle DEC$	vertical angles. Reason
???	3. $\overline{AE} \cong \overline{EC}$	Reason given
	4. $\triangle AEB \cong \triangle CED$	Method for Congruent Triangles SAS

3.



Method	Statements	Reasons
???	1. $\angle D \cong \angle A$	Reason given
???	2. $\angle BCD \cong \angle BCA$	Reason given
???	3. $\overline{BC} \cong \overline{BC}$	reflexive prop.. Reason
	4. $\triangle ABC \cong \triangle DCB$	AAS Method for Congruent Triangles

4.



Given: $\angle A \cong \angle E$
 $\angle CBA \cong \angle DBE$
 B is midpoint of \overline{AE}
 Prove: $\triangle ABC \cong \triangle DEB$

Method	Statements	Reasons
???	1. $\angle A \cong \angle E$	Reason \downarrow given
???	2. $\overline{AB} \cong \overline{BE}$	Reason \downarrow Def of Midpoint
???	3. $\angle CBA \cong \angle DBE$	Reason \downarrow given
	4. $\triangle ABC \cong \triangle DEB$	Reason \downarrow ASA Method for Congruent Triangles