Pre-Calculus AB

Name_____

Worksheet #1

Date_____ Period____

Solve each equation by completing the square.

1) $k^2 - 104 = -22k$

2) $a^2 - 128 = 8a$

3) $3x^2 + 18x = 81$

4) $-6r^2 + 4r + 3 = -7r^2$

Solve each equation with the quadratic formula.

5) $-7x^2 + 19 = 0$

6) $-8r^2 = 2r - 11$

7) $6m^2 + 2m = 16$

8) $2n^2 - 8n = 3$

Simplify.

9) $\dfrac{-8 - 9i}{2 + 2i}$

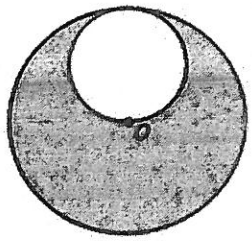
10) $\dfrac{-5 + \sqrt{5}}{9 - 10\sqrt{5}}$

Solve each equation. Remember to check for extraneous solutions.

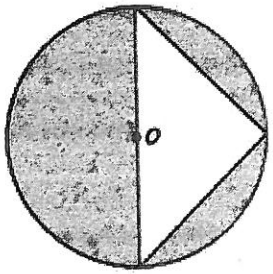
11) $\sqrt{6r - 35} = r - 5$

12) $-3 - \sqrt{8 - n} = \sqrt{3n - 5}$

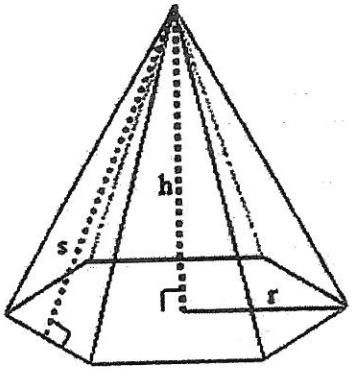
13. The smaller circle has area 5π cm^2. Find the area of the shaded region .



14. In the following figure, the triangle is an isosceles triangle with its base passing through the centre of the circle. The diameter of the circle is 40 cm. Calculate the area of the shaded region.

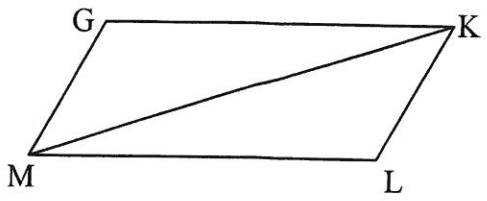


15. Find the surface area and volume of the hexagonal pyramid in terms of the lengths r,s, and h.



16. Given: $\overline{GK} \cong \overline{ML}$, $\angle GKM \cong \angle LMK$

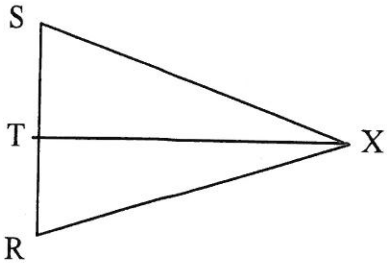
Prove: $\Delta GKM \cong \Delta LMK$



statements	reasons
1. $\overline{GK} \cong \overline{ML}$, $\angle GKM \cong \angle LMK$	1.
2. $\overline{MK} \cong \overline{MK}$	2.
3. $\Delta GKM \cong \Delta LMK$	3.

17. Given: $\angle S \cong \angle R$ and $\overline{XT}$ bisects $\angle SXR$

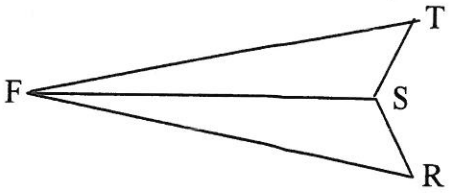
Prove: $\Delta SXT \cong \Delta RXT$



statements	reasons
1. $\angle S \cong \angle R$ and $\overline{XT}$ bisects $\angle SXR$	1.
2. $\angle SXT \cong \angle RXT$	2.
3. $\overline{XT} \cong \overline{XT}$	3.
4. $\Delta SXT \cong \Delta RXT$	4.

18. Given: $\overline{FT} \cong \overline{FR}$ and $\overline{ST} \cong \overline{SR}$

Prove: $\Delta FTS \cong \Delta FRS$

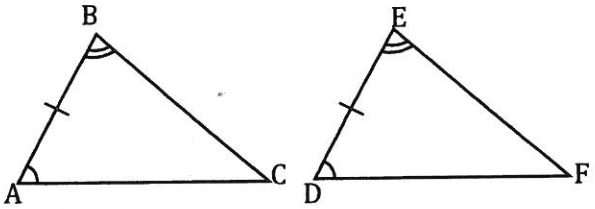


statements	reasons
1. $\overline{FT} \cong \overline{FR}$ and $\overline{ST} \cong \overline{SR}$	1.
2.	2. Reflexive Property
3.	3.

For these fill in any missing statements or reasons.

19.

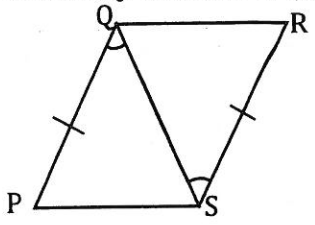
Given: $\overline{AB}\cong\overline{DE}$, $\angle B\cong\angle E$, and $\angle A\cong\angle D$



Prove: $\triangle ABC\cong\triangle DBC$

Statements	Reasons
1. $\overline{AB}\cong\overline{DE}$	1. Given
2.	2.Given
3. $\angle A\cong\angle D$	3.
4. $\triangle ABC\cong\triangle DEF$	4.

20. Given: $\overline{PQ}\cong\overline{RS}$, and $\angle PQS\cong\angle RSQ$

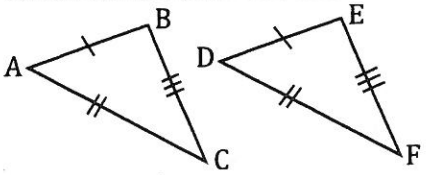


Prove: $\triangle ABC\cong\triangle DBC$

Statements	Reasons
1.	1. Given
2.	2. Given
3. $\overline{QS}\cong\overline{QS}$	3.
4. $\triangle PQS\cong\triangle RSQ$	4.

21.

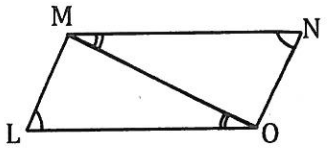
Given: $\overline{AB}\cong\overline{DE}$, $\overline{AC}\cong\overline{DF}$, and $\overline{BC}\cong\overline{EF}$



Prove: $\triangle ABD\cong\triangle DEF$

Statements	Reasons
1. $\overline{AB}\cong\overline{DE}$	1.
2.	2.
3.	3.
4.	4. SSS

22. Given: $\angle L\cong\angle N$, $\angle LOM\cong\angle NMO$

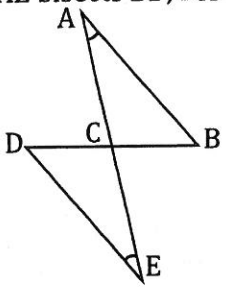


Prove: $\triangle LMO\cong\triangle NOM$

Statements	Reasons
1.	1.
2.	2. Given
3.	3. Reflexive Property
4. $\triangle LMO\cong\triangle NOM$	4.

23.

Given: $\overline{AE}$ bisects $\overline{BD}$, $\angle A\cong\angle E$

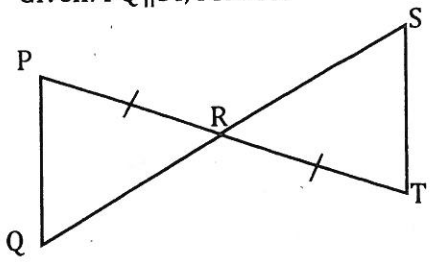


Prove: $\triangle ABC\cong\triangle EDC$

Statements	Reasons
1. $\angle A\cong\angle E$	1.
2.	2. Given
3.	3. Definition of Bisect
4. $\angle ACB\cong\angle DCE$	4.
5. $\triangle ABC\cong\triangle EDC$	5.

24.

Given: $\overline{PQ}\parallel\overline{ST}$, $\overline{PR}\cong\overline{TR}$



Prove: $\triangle PQR\cong\triangle TSR$

Statements	Reasons
1. $\overline{PR}\cong\overline{TR}$	1.
2.	2. Given
3. $\angle P\cong\angle T$	3.
4. $\angle ACB\cong\angle DCE$	4.
5.	5. ASA

Pre-Calculus AB

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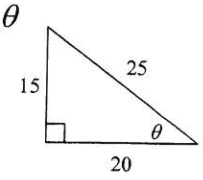
Worksheet #2

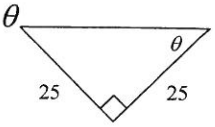
Date_____ Period____

Find the value of the trig function indicated.

1) $\tan\theta$



2) $\sin\theta$



In each triangle ABC, angle C is a right angle. Find the value of the trig function indicated.

3) Find $\cos A$ if $c = 7,\ a = 3\sqrt{5}$

4) Find $\tan A$ if $a = 2,\ c = 8$

Find the value of the trig function indicated.

5) Find $\sin\theta$ if $\cos\theta = \dfrac{23\sqrt{2}}{34}$

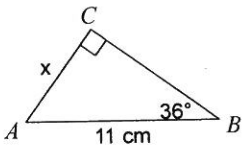
6) Find $\tan\theta$ if $\sin\theta = \dfrac{15}{17}$

7) Find $\cos\theta$ if $\sin\theta = \dfrac{8}{17}$

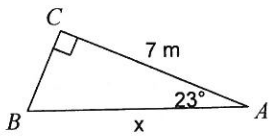
8) Find $\sin\theta$ if $\tan\theta = \dfrac{1}{2}$

Find the measure of each side indicated. Round to the nearest tenth.

9)



10)



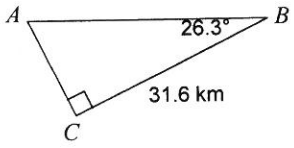
In each problem, angle C is a right angle. Find the side indicated to the nearest tenth.

11) Find b if $c = 4$, $m\angle A = 58°$

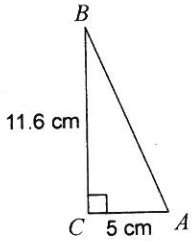
12) Find c if $b = 7$, $m\angle A = 64°$

Solve each triangle. Round answers to the nearest tenth.

13)



14)



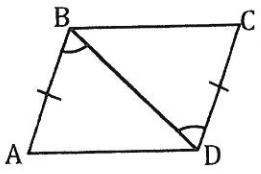
15) Convert $-5\hat{i} - 3\hat{j}$ to polar coordinates. Write four forms of polar coordinates of this point.

16) Convert $12\angle - 352°$ and $-5\angle 720°$ to rectangular form.

17) A man on the deck of a ship is 15 ft above sea level. He observes that the angle of elevation of the top of a cliff is 70° and the angle of depression of its base at sea level is 50°. Find the height of the cliff and its distance from the ship.

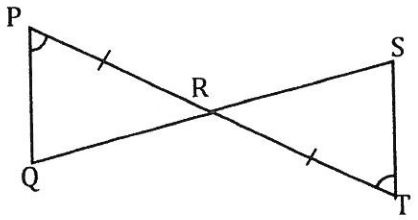
18) From the top of a tower of height 50 ft, the angles of depression of two cars traveling on a straight road towards the base of the tower are 25° and 40°. Calculate the distance between the two cars.

19. Given: $\overline{AB} \cong \overline{CD}$, $\angle ABD \cong \angle CDB$



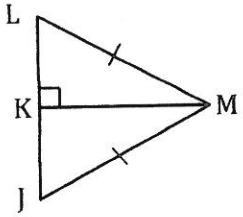
Prove: $\triangle ABD \cong \triangle CDB$

20. Given: $\overline{PR} \cong \overline{TR}$, $\angle P \cong \angle T$



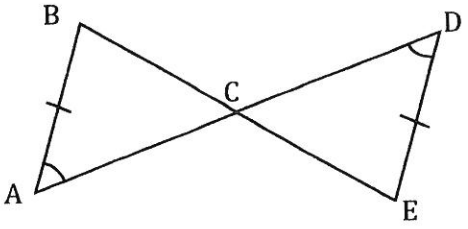
Prove: $\triangle RPQ \cong \triangle RTS$

21. Given: $\overline{LM} \cong \overline{JM}$



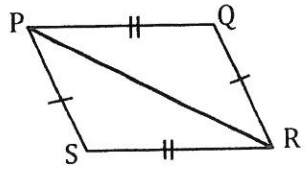
Prove: $\triangle LKM \cong \triangle JKM$

22. Given: $\overline{AB} \cong \overline{ED}$, $\angle A \cong \angle D$



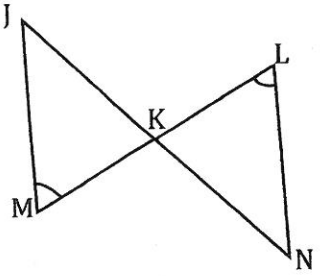
Prove: $\triangle ABC \cong \triangle DCE$

23. Given: $\overline{PS} \cong \overline{QR}$, $\overline{PQ} \cong \overline{SR}$



Prove: $\triangle PRS \cong \triangle RPQ$

24. Given: $\overline{JN}$ Bisects $\overline{ML}$, $\angle M \cong \angle L$



Prove: $\triangle MJK \cong \triangle LNK$