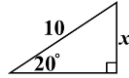


Semester 2 Final Review G
Solving Inverse Trigonometric Ratios and Right Triangles

Example:

A group of students were in a disagreement about how to solve for x in the figure. Which method(s) are correct? *Select all that apply.*



~~A. Use the Pythagorean theorem~~

*No: It uses all three sides
(2 with numbers, one without).*

~~B. Use the Triangle Inequality theorem~~

*No: It compares side length to angle size,
which does not apply here.*

~~C. Use $\tan 20$~~

*No: It uses opposite and adjacent.
We have opposite and hypotenuse.*

~~D. Use 30-60-90 triangles~~

*No: We do not have a 30 or a 60
degree angle inside of the triangle.*

~~E. Use 45-45-90 triangles~~

*No: We do not have a 45
degree angle inside of the triangle.*

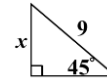
~~F. Use $\cos 20$~~

*No: It uses adjacent and hypotenuse.
We have opposite and hypotenuse.*

G. Use $\sin 20$

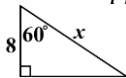
*YES!! It uses opposite and hypotenuse
of the 20 degree angle, which we have.*

1. A group of students were in a disagreement about how to solve for x in the figure. Which method(s) are correct? *Select all that apply.*



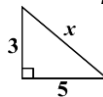
- A. Use $\sin 45$
- B. Use 30-60-90 triangles
- C. Use $\tan 45$
- D. Use $\cos 45$
- E. Use the Triangle Inequality theorem
- F. Use the Pythagorean theorem
- G. Use 45-45-90 triangles

2. A group of students were in a disagreement about how to solve for x in the figure. Which method(s) are correct? *Select all that apply.*



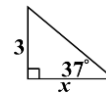
- A. Use $\sin 60$
- B. Use $\cos 60$
- C. Use $\tan 60$
- D. Use 30-60-90 triangles
- E. Use 45-45-90 triangles
- F. Use the Pythagorean theorem
- G. Use the Triangle Inequality theorem

3. A group of students were in a disagreement about how to solve for x in the figure. Which method(s) are correct? *Select all that apply.*



- A. Use the Pythagorean theorem
- B. Use the Triangle Inequality theorem
- C. Use $\tan 40$
- D. Use 30-60-90 triangles
- E. Use 45-45-90 triangles
- F. Use $\cos 40$
- G. Use $\sin 40$

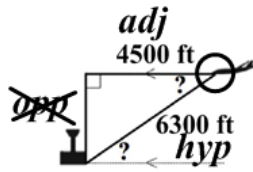
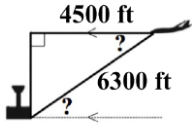
4. A group of students were in a disagreement about how to solve for x in the figure. Which method(s) are correct? *Select all that apply.*



- A. Use $\sin 37$
- B. Use 30-60-90 triangles
- C. Use $\tan 37$
- D. Use $\cos 37$
- E. Use the Triangle Inequality theorem
- F. Use the Pythagorean theorem
- G. Use 45-45-90 triangles

Example:

The diagonal distance from a plane to the airport is 6300 feet. The pilot reports that the plane's horizontal distance is 4500 feet. Find the angle of depression from the plane to the airport.



$$\cos ? = \frac{4500}{6300}$$

$$\cos^{-1} \left(\frac{4500}{6300} \right) = ?$$

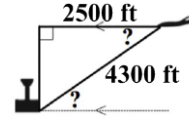
Forwards-functioning calculator: $2^{\text{nd}} \cos (4500 \div 6300) =$

Backwards-functioning calculator: $(4500 \div 6300) 2^{\text{nd}} \cos =$

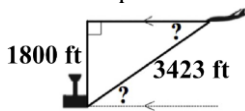
$$? = 44.4153 \dots$$

$$? = \boxed{44^\circ}$$

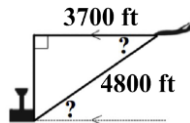
5. The diagonal distance from a plane to the airport is 4300 feet. The pilot reports that the plane's horizontal distance is 2500 feet. Find the angle of depression from the plane to the airport.



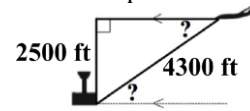
6. The diagonal distance from a plane to the airport is 3423 feet. The pilot reports that the plane's altitude is 1800 feet. Find the angle of depression from the plane to the airport.



7. The diagonal distance from a plane to the airport is 4800 feet. The pilot reports that the plane's horizontal distance is 3700 feet. Find the angle of depression from the plane to the airport.



8. The diagonal distance from a plane to the airport is 4300 feet. The pilot reports that the plane's altitude is 2500 feet. Find the angle of depression from the plane to the airport.



Example:

Calculate the measure of angle G in the triangle below. If necessary, round your answer to the nearest degree.



$$\sin G = \frac{7}{21}$$

$$\sin^{-1}\left(\frac{7}{21}\right) = m\angle G$$

Forwards-functioning calculator: $2^{\text{nd}} \sin (7 \div 21) =$

Backwards-functioning calculator: $(7 \div 21) 2^{\text{nd}} \sin =$

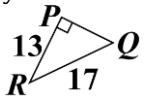
$$m\angle G = 19.47122 \dots$$

$$m\angle G = \boxed{19^\circ}$$

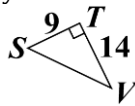
9. Calculate the measure of angle N in the triangle below. If necessary, round your answer to the nearest degree.



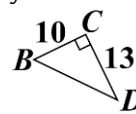
10. Calculate the measure of angle R in the triangle below. If necessary, round your answer to the nearest degree.



11. Calculate the measure of angle S in the triangle below. If necessary, round your answer to the nearest degree.



12. Calculate the measure of angle D in the triangle below. If necessary, round your answer to the nearest degree.



Semester 2 Final Review G

Solving Inverse Trigonometric Ratios and Right Triangles Answers:

1. A, D & G	2. B & D	3. A	4. C	5. 54°	6. 32°
7. 40°	8. 36°	9. 48°	10. 40°	11. 57°	12. 38°