

Sample Documents

Geometry

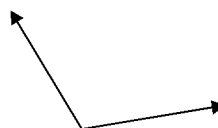
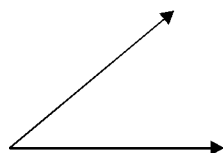
(GEO)

EducAide Software

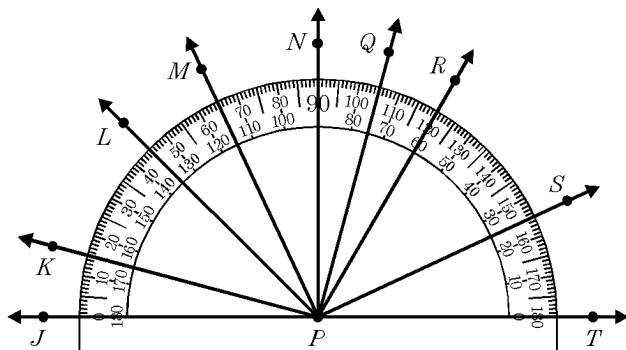
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Part I. (No explicit directions.)

1. What is the degree measure of a right angle?
2. Which has a greater measure: an *acute angle* or a *right angle*?
3. Two angles that have degree measures that add to 180 are called ____ angles.
4. If two complementary angles are ____, then they are right angles.
5. Which of the following could represent the sum of the measures of two obtuse angles?
a) 95° b) 182° c) 375° d) 520°
e) all of these values
6. Which of the following could represent the sum of the measures of an acute angle and a right angle?
a) 72° b) 95° c) 180° d) 185°
e) all of these values
7. An angle is 67° smaller than its supplement. What are the measures of the two angles?
8. One of two complementary angles is 25° larger than the other. What is the measure of both angles?
9. Estimate the degree measure of this angle.
10. Estimate the degree measure of this angle.



Part II. Find the degree measures of the following angles.



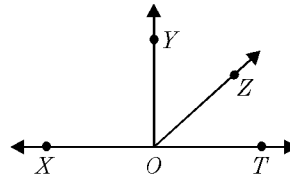
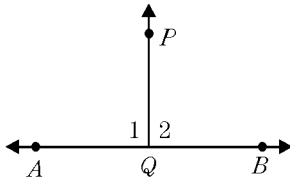
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|------------------|------------------|------------------|------------------|
| 11. $\angle JPL$ | 12. $\angle JPT$ | 13. $\angle JPM$ | 14. $\angle TPR$ |
| 15. $\angle TPN$ | 16. $\angle SPR$ | 17. $\angle MPR$ | 18. $\angle LPR$ |

Part III. Determine whether each of the following statements is *always*, *sometimes*, or *never* true.

19. An acute angle is congruent to a right angle.
20. Two congruent angles are also vertical angles.
21. The two angles in a linear pair are adjacent to each other.
22. Two adjacent angles have common interior points.
23. Three angles whose degree measures sum to 180 are supplementary angles.
24. The sum of the measures of two right angles is greater than the measure of one obtuse angle.

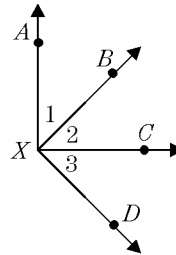
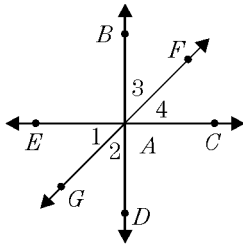
Part IV. Determine whether each of the following statements is *true* or *false*.

25. $\angle 1$ and $\angle 2$ are complementary angles.
26. $\angle XOZ$ and $\angle ZOT$ are supplementary.



27. $\angle EAB$ must be a right angle.

28. $\angle AXC$ and $\angle BXD$ are adjacent.



Part V. (No explicit directions.)

29. The ratio of the measures of two supplementary angles is $\frac{1}{5}$. What are the measures of the two angles?
30. The measures of two supplementary angles are in the ratio 4 : 11. What are the measures of the two angles?
31. You are given that \overrightarrow{FH} bisects $\angle EFG$ and that $m\angle EFH = 2x + 32$ and $m\angle GFHX = 4x - 10$. What is the measure of $\angle EFH$?
32. You are given that \overrightarrow{PT} bisects $\angle MPQ$ and that $m\angle MPT = 2k + 10$ and $m\angle TPQ = 6k - 2$. What is the value of k ?

Answer List

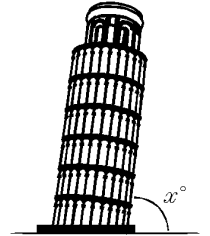
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|---------------------------------|--------------------------------|------------------------------|
| 1. 90 | 2. right angle | 3. supplementary |
| 4. congruent | 5. b | 6. b |
| 7. 56.5° , 123.5° | 8. 32.5° , 57.5° | 9. ≈ 40 |
| 10. ≈ 110 | 11. 45 | 12. 180 |
| 13. 65 | 14. 60 | 15. 90 |
| 16. 35 | 17. 55 | 18. 75 |
| 19. Never | 20. Sometimes | 21. Always |
| 22. Never | 23. Never | 24. Always |
| 25. False | 26. True | 27. False |
| 28. False | 29. 30° , 150° | 30. 48° , 132° |
| 31. 74° | 32. 3 | |
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Catalog List

- | | | |
|---------------|---------------|---------------|
| 1. GEO BA 4 | 2. GEO BA 8 | 3. GEO BA 13 |
| 4. GEO BA 22 | 5. GEO BA 9 | 6. GEO BA 11 |
| 7. GEO BK 3 | 8. GEO BK 16 | 9. GEO BA 23 |
| 10. GEO BA 25 | 11. GEO BF 1 | 12. GEO BF 3 |
| 13. GEO BF 6 | 14. GEO BF 9 | 15. GEO BF 10 |
| 16. GEO BF 24 | 17. GEO BF 26 | 18. GEO BF 30 |
| 19. GEO BC 2 | 20. GEO BC 8 | 21. GEO BC 11 |
| 22. GEO BC 22 | 23. GEO BC 36 | 24. GEO BC 40 |
| 25. GEO BB 1 | 26. GEO BB 8 | 27. GEO BB 14 |
| 28. GEO BB 17 | 29. GEO BK 7 | 30. GEO BK 12 |
| 31. GEO BJ 34 | 32. GEO BJ 28 | |

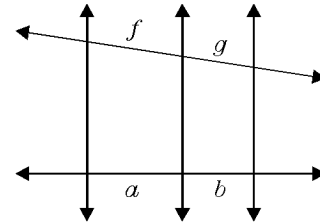
_____ 1. The side lengths of a given triangle are $x + 3$, $3x - 3$, and $2x + 4$. If the perimeter of the triangle is 40, what is the length of the longest side of the triangle?

_____ 2. The leaning tower of Pisa is approximately 182 feet tall. If an object is dropped from the top, it will land about 14 feet from the base. At what angle does the tower lean? (Measure from the horizon.)

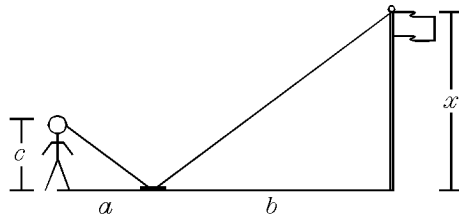


_____ 3. A segment is divided into 3 parts such that the longest piece is four times as large as the smallest piece, and the smallest piece is one-third the size of the middle length piece. If the original segment was 24 units long, what are the lengths of the three pieces?

_____ 4. In the diagram, the three vertical lines are parallel, $f = 27$, $g = 18$, $a = 33 - x$, and $b = x$. What is the value of x ?

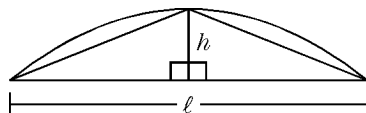


_____ 5. Sandy is trying to measure the height of a nearby flagpole using a mirror as shown in the diagram. The mirror is 6 meters away from the flagpole and 2 meters away from Sandy. The height to her eyes is 157 centimeters, from which she can clearly see the top of the flagpole. How many *centimeters* tall is the flagpole?

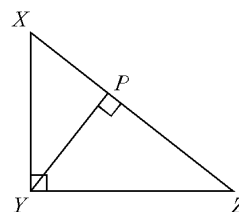


_____ 6. A triangle with sides of 6, 10, and 12 is similar to a triangle whose longest side is 36. What is the perimeter of the larger triangle?

- _____ 7. Most metals expand when heated and contract when cooled. In the diagram a length of steel rail ($\ell = 50$ meters) is attached solidly at its endpoints. If the length of the rail expands 0.022 meters on a hot day, approximately how many *centimeters* will the rail buckle up? (Find h in the diagram using right triangles to approximate the buckling.)



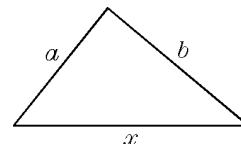
- _____ 8. In the diagram, right $\triangle XYZ$ is similar to 2 other right triangles. Name the other two triangles.



- _____ 9. In the diagram, $XP = 9$ and $PZ = 15$. What is the length of \overline{YP} ?

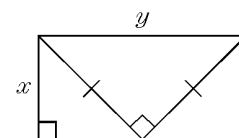
- _____ 10. In the diagram, $ZP = 10$ and $XZ = 19$. What is the length of \overline{YZ} ?

- _____ 11. In the diagram, $a = 9$, $b = 12$, and x is the length of the *longest* side. For what value(s) of x will the triangle be an obtuse triangle?



- _____ 12. A guy wire stretches from a point on the ground 18 feet away from a vertical pole to the top of the 24-foot high pole. How many feet long is the guy wire?

- _____ 13. In the diagram, the value of x is 12. What is the value of y ?



- _____ 14. One number is to be selected from each of the following sets. A triangle is then to be constructed using these numbers as side lengths. What is the probability that the triangle will be right?

$$\text{Set } A = \{3, 15\}; \text{ Set } B = \{17, 4\}; \text{ Set } C = \{8, 5\}$$

Answer List

- | | | |
|------------------------|-----------------------------------|-----------------------|
| 1. 16 units | 2. $\approx 85.6^\circ$ | 3. 3, 9, 12 |
| 4. 13.2 | 5. 471 cm | 6. 84 units |
| 7. ≈ 74.1 cm | 8. $\triangle XPY, \triangle YPZ$ | 9. $3\sqrt{15}$ units |
| 10. $\sqrt{190}$ units | 11. $x > 15$ | 12. 30 ft |
| 13. 24 | 14. $\frac{1}{4}$ | |

Catalog List

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|---------------|---------------|---------------|
| 1. GEO EE 19 | 2. GEO HJ 53 | 3. GEO GE 10 |
| 4. GEO GF 3 | 5. GEO GI 21 | 6. GEO GI 39 |
| 7. GEO HI 25 | 8. GEO HB 2 | 9. GEO HB 7 |
| 10. GEO HB 20 | 11. GEO HE 13 | 12. GEO HC 69 |
| 13. GEO HG 26 | 14. GEO HF 3 | |