Mrs. Strong's Math Study Guide

Page 1 - Exponents
(No whining; they're important)

Page 2 - Parallel Lines, Transversals, & Angle Relationships.

Page 3 - Transformations, Properties of Triangles.

Pages 4 & 5 - Pythagorean Theorem

Page 6 - Volume of 3D shapes

Remember, 75% of this study guide must be completed to review on Friday!

Determine whether the properties of exponents are used correctly to simplify.

1 $\frac{5^{10}}{5^5} = 5^2$ ○ Yes ○ No

2 $(4^8)^3 = 4^{24}$ ○ Yes ○ No

3 $10^{-4} = \frac{1}{4^{10}}$ ○ Yes ○ No

4 $15^6 \cdot 15^3 = 15^{18}$ ○ Yes ○ No

5 $(6^8)^0 = 1$ ○ Yes ○ No

6 Simplify the expression $(8^5)^0 + (7+3)^6 \cdot 10^{-8}$.

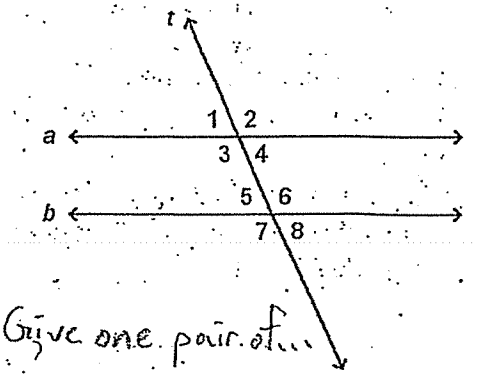
7 Use properties of exponents to write an equivalent expression for $(9^4)^6$.

8 Find the missing exponent. Explain.

$$\frac{5^{11}}{5^?} = 5^4$$

9 Use properties of exponents to write an equivalent expression for $\frac{13^9}{13^6}$.

10 Use properties of exponents to write an equivalent expression for $11^2 \cdot 11^5$.



Give one pair of...

11. Corresponding Angles: ∠1 and ∠5

12. Alternate Interior Angles: ∠3 and ∠5

13. Alternate Exterior Angles: ∠1 and ∠7

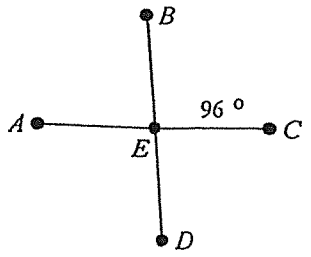
14. Vertical Angles: ∠1 and ∠4

15. Supplementary Angles: ∠1 and ∠2

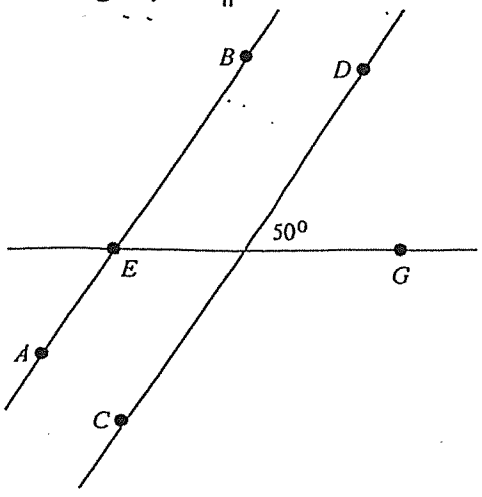
18. If ∠2 = 145° and ∠6 = 117° in the diagram on the left, then line a and line b are:

○ parallel ○ not parallel

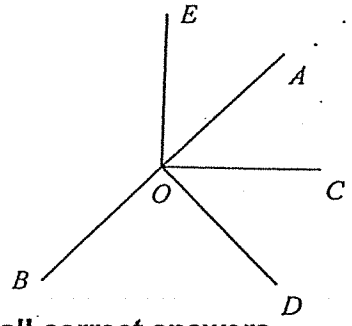
16. Find the measure of $\angle AED$ for $m\angle BEC = 96°$.



17. In the figure, $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$. Find the measure of $\angle GEB$.



19. Name two angles adjacent to $\angle AOC$.

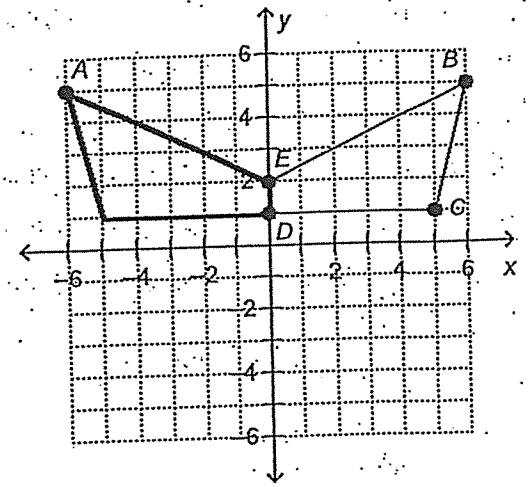


Select all correct answers.

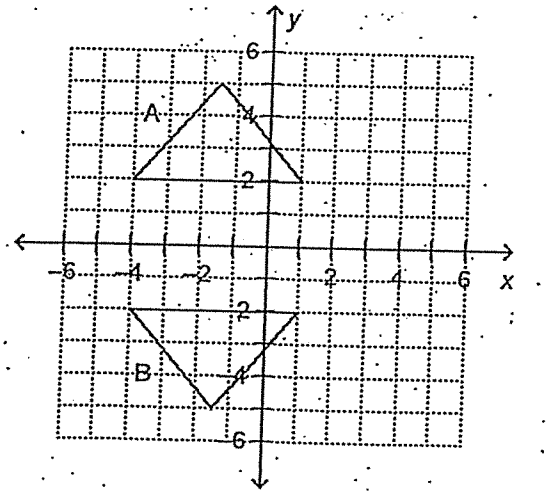
20. Suppose two parallel lines are cut by a transversal. What angle relationships describe congruent angles in this context?

- (A) Corresponding angles
- (B) Linear pair
- (C) Same-side interior angles
- (D) Same-side exterior angles
- (E) Alternate exterior angles
- (F) Alternate interior angles

21 Seth is designing a symmetrical logo for his store. He draws half of the logo, which is shown in the second quadrant below. He then reflects that half of the logo across the y-axis to finish it. Which angle in the reflection has the same measure as $\angle A$?



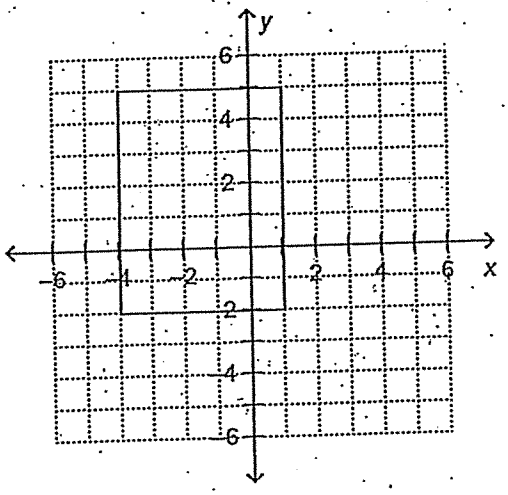
22 Figure B is the image of figure A under what transformation?



5 Which set of angles does NOT form a triangle?

(A) 85°, 43°, and 52°
(B) 90°, 37°, and 51°
(C) 37°, 65°, and 78°
(D) 120°, 12°, and 48°

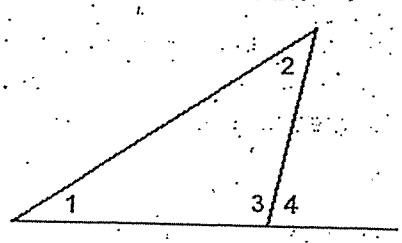
24 The rectangle shown is translated 6 units to the left. Which ordered pair is NOT a vertex of the image?



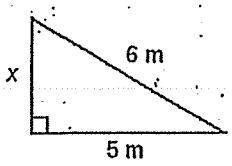
(A) (2, –2)
(B) (–10, 5)
(C) (–5, –2)
(D) (–5, 5)

25 Point A is located at (5, –5), and point B is located at (0, –5). $\overline{AB}$ is rotated counterclockwise 90° about the origin. What are the coordinates of points A' and B', the images of points A and B after the rotation?

26 In the triangle, $m\angle 1 = 42°$ and $m\angle 4 = 81°$. What is $m\angle 2$?

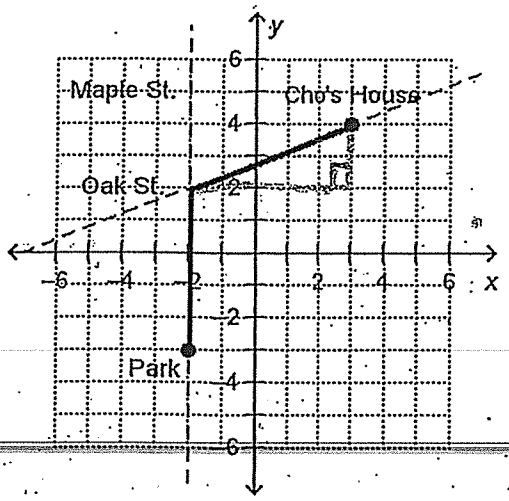


27 What is the unknown side length, to the nearest tenth of a meter, in the triangle shown?

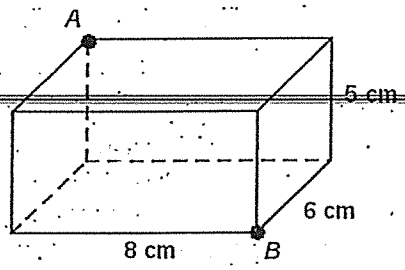


30 The size of a computer screen is measured along the diagonal. What is the approximate size, measured to the nearest inch, of a 12 in. by 10.5 in. computer screen?

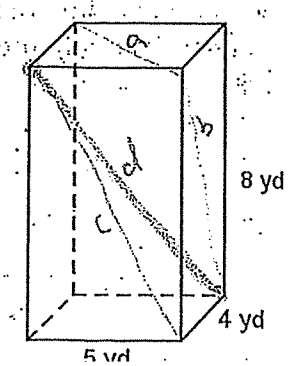
28 Every morning, Cho rides his bicycle from his house to the park and then back to his house. He takes the same route in both directions. His route is shown on the coordinate plane, where each unit represents 1 mile. How far does Cho ride every morning? Round to the nearest tenth of a mile.



31 What is the approximate length of the diagonal from point *A* to point *B* in the right rectangular prism shown? Round your answer to the nearest centimeter.



29 Which measurements, rounded to the nearest tenth of a yard, are the lengths of a diagonal of the right rectangular prism or any diagonal of a face of the prism?



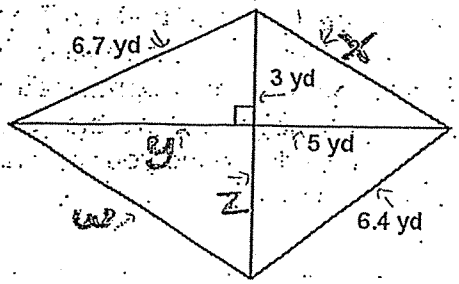
a =

b =

c =

d =

Which measurements, rounded to the nearest tenth of a yard, are the unknown lengths in the figure shown?



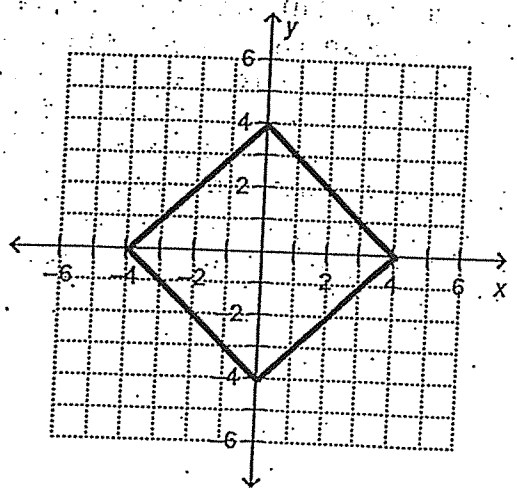
32) w =

33) x =

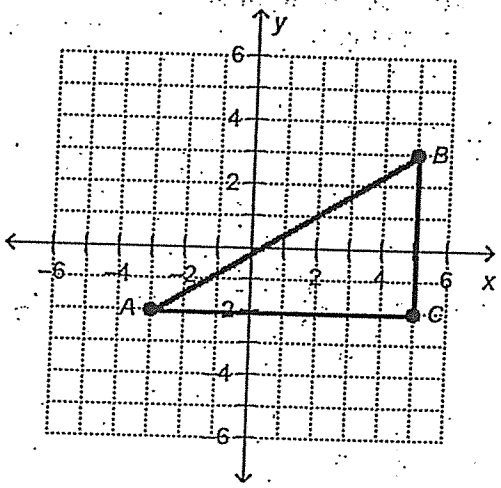
34) y =

35) z =

Find the perimeter of the square shown. Round to the nearest tenth.



37 Find the length of $\overline{AB}$ in $\triangle ABC$ shown on the coordinate plane. Round to the nearest unit.



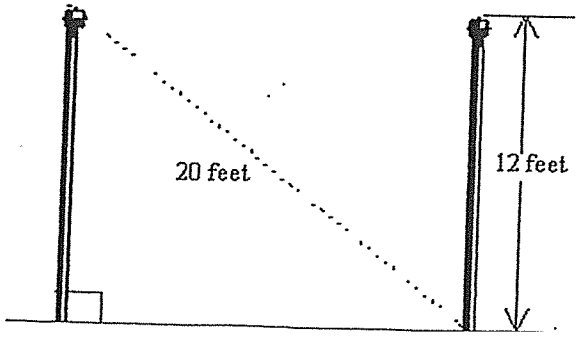
38 Can the following lengths form a right triangle?

3, 4, 6 ○ Yes ○ No

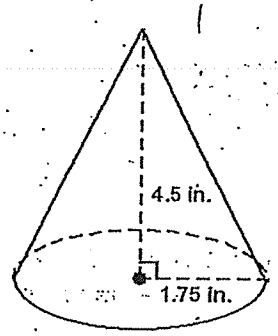
9, 12, 15 ○ Yes ○ No

5, 5, 50 ○ Yes ○ No

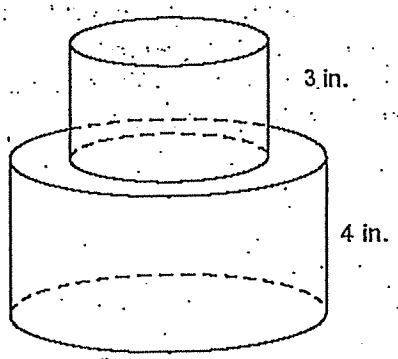
Two flag poles in front of the Court House are 12 ft tall. The distance from the top of one pole to the base of the other as shown in the diagram is 20 ft. What is the distance between the two flag poles?



40 What is the volume of the cone with the given dimensions? Use 3.14 for π. Round your answer to the nearest tenth of a cubic inch.



43 Stefan is making a two-tier cake in the shape shown. The diameter of the bottom cylindrical tier is 8 in., and the diameter of the top cylindrical tier is 5 in. Which measurements are the volumes of each tier and the entire cake? Use 3.14 for π. Round to the nearest cubic inch.



44 What is the formula for the volume of a sphere with diameter d?

Ⓐ $V = \frac{1}{3}\pi\left(\frac{d}{2}\right)^3$

Ⓑ $V = 4\pi d^3$

Ⓒ $V = \frac{4}{3}\pi\left(\frac{d}{2}\right)^3$

Ⓓ $V = \frac{4}{3}\pi d^3$

42 A cylindrical soup can has a height of $3\frac{1}{2}$ in. and a diameter of $2\frac{1}{8}$ in. What is the volume of the soup can? Use 3.14 for π. Round to the nearest tenth of a cubic inch.

41 What is the ratio of the volumes of a cylinder and a cone having the same base radius r and height h?

Ⓐ The volume of a cone is 3 times the volume of a cylinder.

Ⓑ The volume of a cylinder is 3 times the volume of a cone.

Ⓒ The volume of a cylinder is $\frac{1}{3}$ times the volume of a cone.

Ⓓ The volumes of a cylinder and a cone are equal.

45 A ball has a radius of 8 cm. What is the volume of the ball? Use 3.14 for π. Round to the nearest tenth of a cubic centimeter.

50 multiple choice questions on the exam!