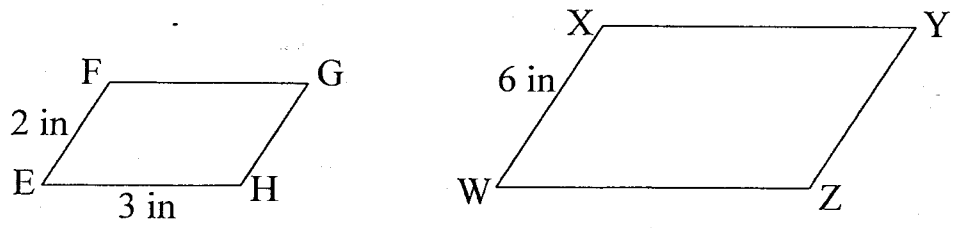
Kelsey - Mr. FGH to WXY

Worksheet on Similar Figures and Indirect Measurement with Multiple Choice

Show proportions for all problems.

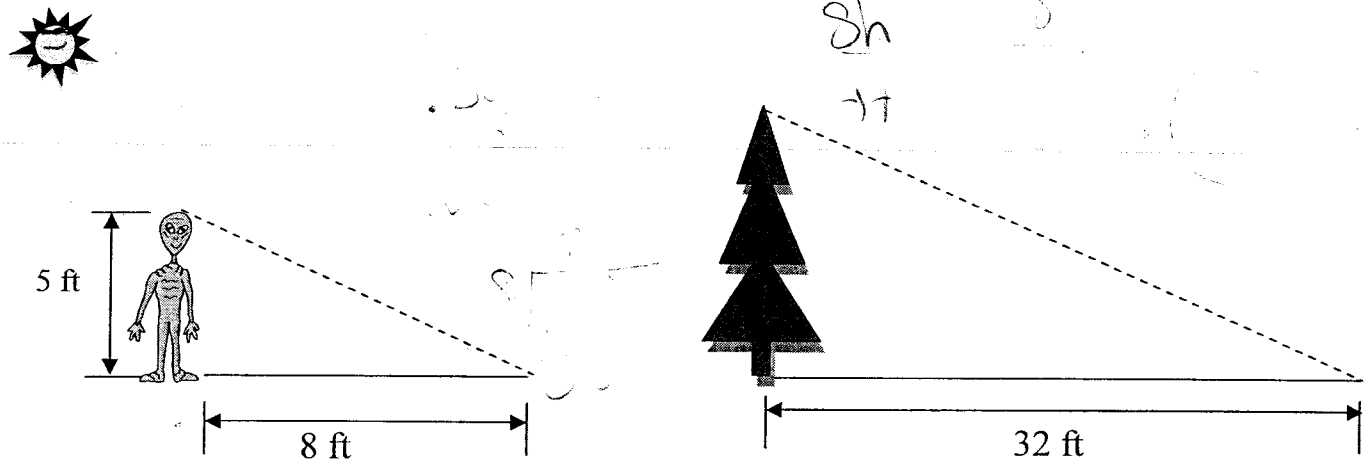
1. Parallelogram EFGH is similar to parallelogram WXYZ.



What is the length of $\overline{WZ}$?

a) 3 in b) 6 in c) 7 in d) 9 in

2. Lance the alien is 5 feet tall. His shadow is 8 feet long.



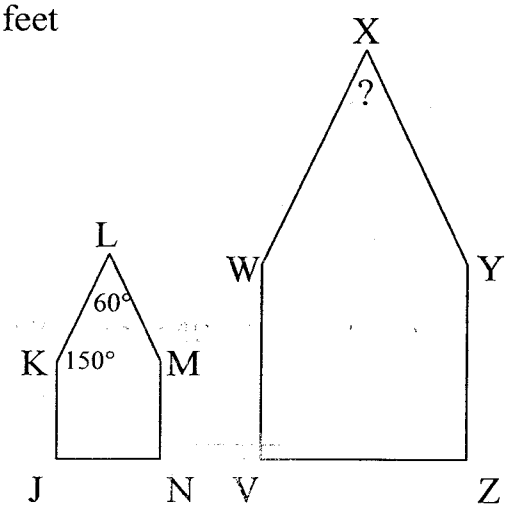
At the same time of day, a tree's shadow is 32 feet long. What is the height of the tree?

a) 20 feet b) 24 feet c) 29 feet d) 51 feet

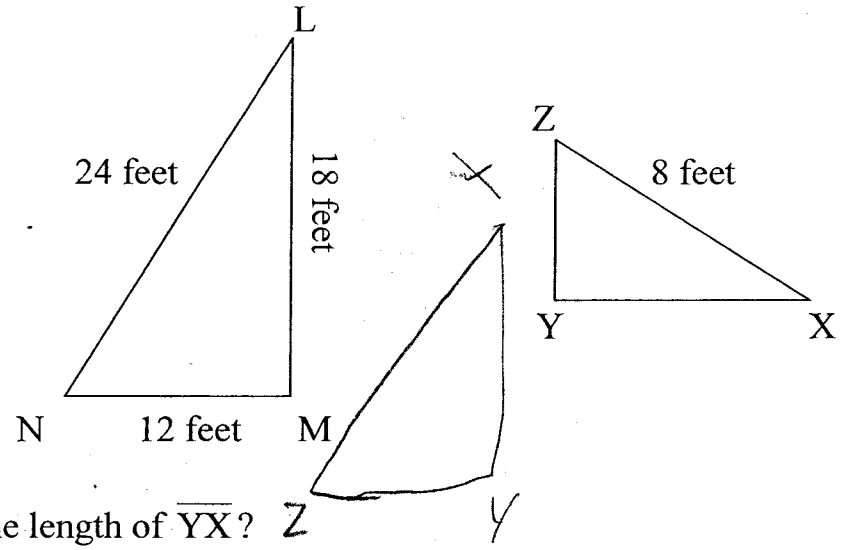
3. Pentagon JKLMN is similar to pentagon VWXYZ.

What is the measurement of angle X?

a) 30° b) 60° c) 150° d) 120°



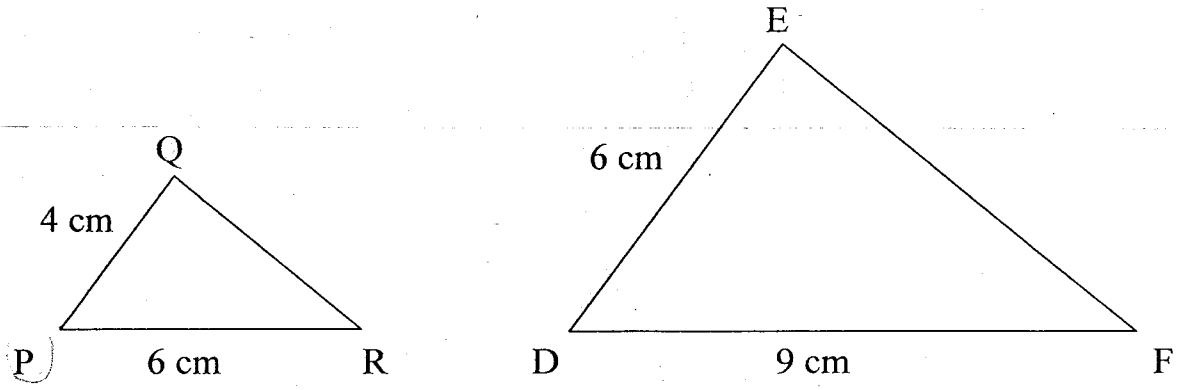
4. Triangle LMN is similar to triangle XYZ.



What is the length of $\overline{YX}$?

a) 2 feet b) 3 feet c) 4 feet d) 6 feet

5. Triangle PQR is similar to triangle DEF as shown.

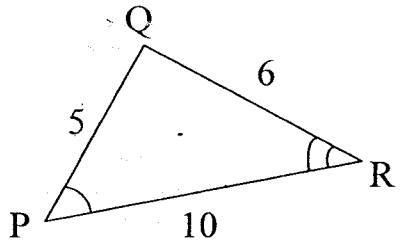


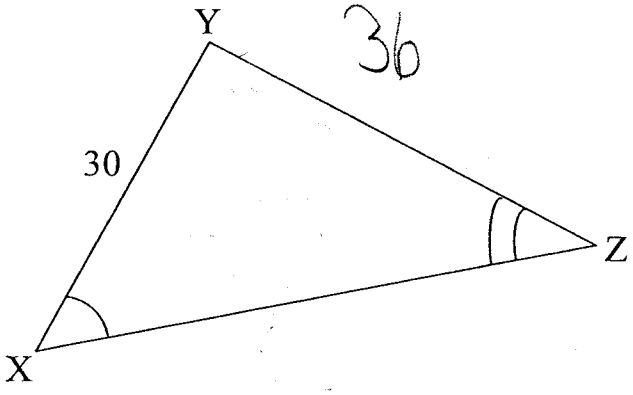
Which describes the relationship between the corresponding sides of the two triangles?

a) $\frac{PQ}{DE} = \frac{4}{6}$ b) $\frac{PQ}{DE} = \frac{6}{4}$ c) $\frac{PQ}{EF} = \frac{4}{9}$ d) $\frac{PR}{DE} = \frac{6}{6}$

6. A six-foot-tall person is standing next to a flagpole. The person is casting a shadow $1\frac{1}{2}$ feet in length, while the flagpole is casting a shadow 5 feet in length. How tall is the flagpole? a) 30 ft b) 25 ft c) 20 ft d) 15 ft

7. ΔPQR is similar to ΔXYZ.





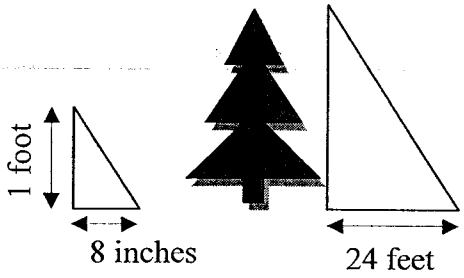
What is the perimeter of ΔXYZ?

a) 21 cm b) 63 cm c) 105 cm d) 126 cm

8. The shadow cast by a one-foot ruler is 8 inches long. At the same time, the shadow cast by a pine tree is 24 feet long.

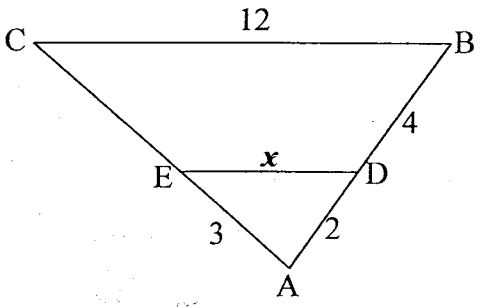
What is the height, in feet, of the pine tree?

a) 3 feet b) 16 feet c) 36 feet d) 192 feet



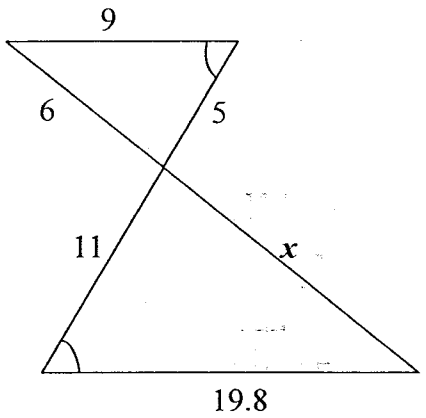
9. If triangles ADE and ABC shown in the figure to the right are similar, what is the value of x?

a) 4 b) 5 c) 6 d) 8 e) 10



10. In the figure to the right, the two triangles are similar. What is the value of x?

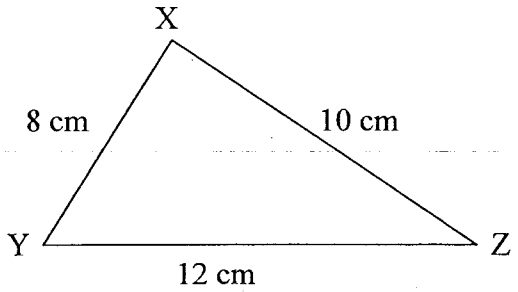
a) 12.4 b) 13.2 c) 14 d) 18.6 e) 22.1



11. Mr. Smith is having some photos enlarged for his studio. He wants to enlarge a photo that is 5 inches by 7 inches so the dimensions are 3 times larger than the original. How many times larger than the original photo will the area of the new photo be?

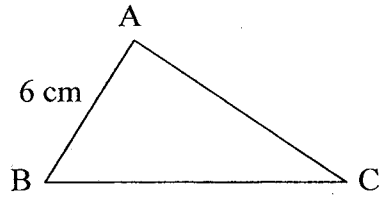
a) 3 b) 6 c) 9 d) 30

12. ΔABC is similar to ΔXYZ.

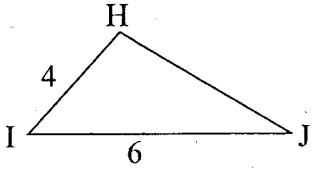


What is the length of segment $\overline{BC}$?

a) 5 cm b) 7.5 cm c) 8 cm d) 9 cm e) 10 cm

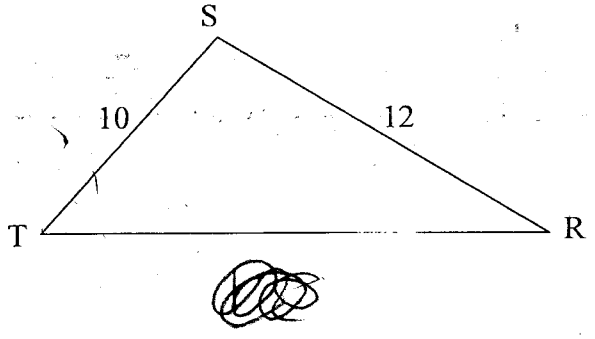


13. ΔHIJ is similar to ΔSTR.



What is the perimeter of ΔSTR?

a) 32 b) 37 c) 40 d) 42 e) 120



14. Alanis is moving and needs to pack two mirrors. The largest mirror fits in a box that is 18 inches wide by 20 inches long. Her smaller mirror is similar in proportion to the larger mirror. Alanis determines that the width of the smaller box needs to be a minimum of 9 inches.

What should be the minimum length of the box to hold the smaller mirror?

a) 2 inches b) 6 inches c) 9 inches d) 10 inches

15. The angle of the roof on Kaya's dollhouse is 56°. She built a scale model of the dollhouse with a scale ratio of 1 : 4. What is the measure of the angle of the roof of the model?

a) 14° b) 34° c) 56° d) 224°

16. Ryan and Kathy each drew a triangle with an angle of 20 degrees. Under which condition would the triangles be similar?

a) if both are right triangles

b) if both are obtuse triangles

c) if the triangles have the same area

d) if the triangles have the same perimeter

Similar Figures Worksheet
Show All Work Where Necessary!

Name Kelsey Clark

You can use proportional relationships to find missing side lengths in similar figures

Solve each proportion.

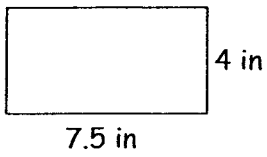
1. $\frac{3}{8} = \frac{x}{24}$

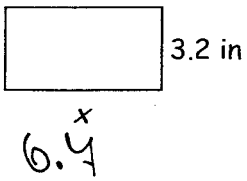
2. $\frac{5}{7} = \frac{25}{y}$

3. $\frac{5}{t} = \frac{t}{45}$

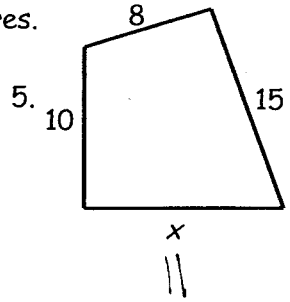
Find the indicated length for each pair of similar figures.

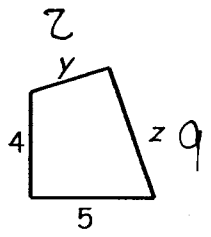
4.



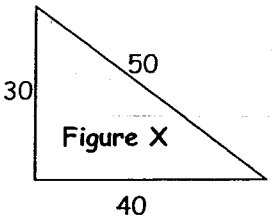


5.

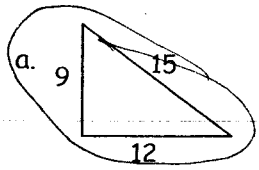




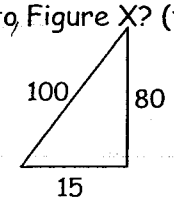
6. Which of the following figures are similar to Figure X? (there may be more than one)



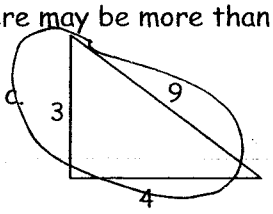
a.



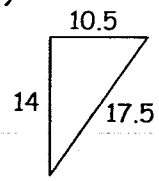
b.



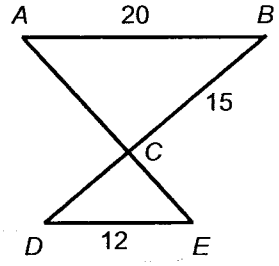
c.



d.



7. In the diagram below, $\overline{AB}$ is parallel to $\overline{DE}$. $AB = 20$ inches, $DE = 12$ inches, and $BC = 15$ inches. What is the length of $\overline{DC}$?



A. 25 in.
B. 9 in.
C. 7 in.
D. 90 in.

8. A rectangle has a length of 4 feet and a perimeter of 14 feet. What is the perimeter of a similar rectangle with a width of 9 feet?

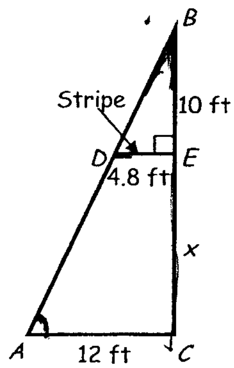
A. 36 ft
B. 108 ft
C. 42 ft
D. 126 ft

4 [P=14] = [P=?] 9

9. Brandon wants to reduce a figure that is 9 inches tall and 16 inches wide so that it will fit on a 9-inch-by-12-inch piece of paper. If he reduces the figure proportionally, what is the maximum size the reduced figure could measure?

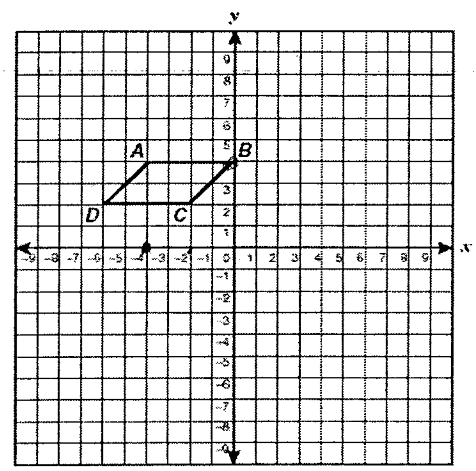
A. 12 inches by $21\frac{1}{3}$ inches
B. 9 inches by 12 inches
C. $5\frac{1}{16}$ inches by 9 inches
D. $6\frac{3}{4}$ inches by 12 inches

10. The sail shown below has a horizontal stripe parallel to the base of the sail. What is the distance, x, from the bottom of the sail to the stripe?



A. 25 feet
B. 15 feet
C. 5.8 feet
D. 4 feet

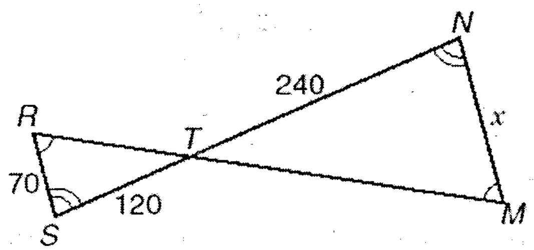
11. The graph of parallelogram *ABCD* is shown below.



Which set of coordinates identifies the vertices of a parallelogram that is similar to *ABCD*?

A. (0, 2), (2, 2), (1, 1), (–1, 1)
B. (–2, 2), (0, 2), (1, 0), (–1, 0)
C. (–8, 8), (–3, 8), (–5, 4), (–10, 4)
D. (–3, 1), (1, 1), (–1, 5), (–5, 5)

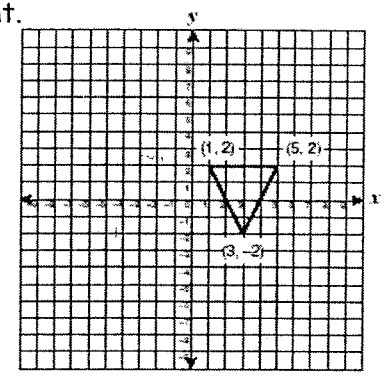
12. If triangle TSR is similar to triangle TNM, what is the length of x?



90
× 2
140

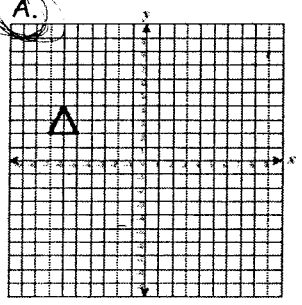
Answer
140

13. A triangle with vertices (1, 2), (5, 2), and (3, –2) is shown to the right.

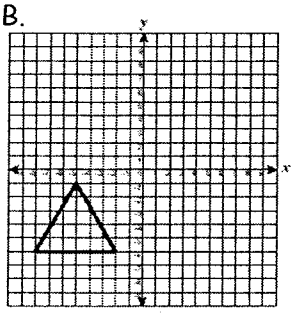


Which triangle below is similar to the figure above?

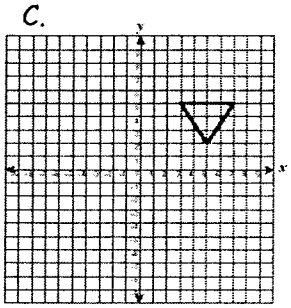
A.



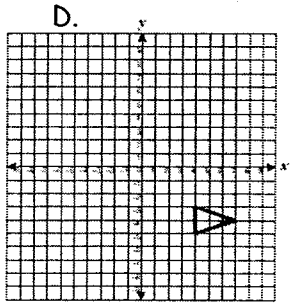
B.



C.

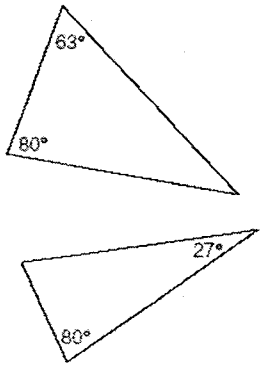


D.

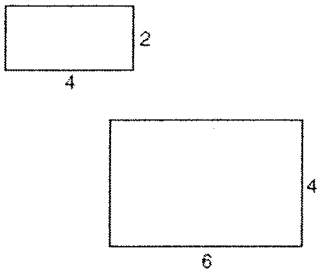


14. Use the information in each diagram to determine which pairs of polygons are similar.

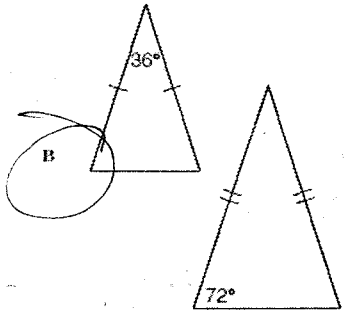
A



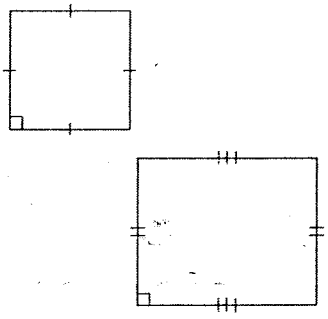
C



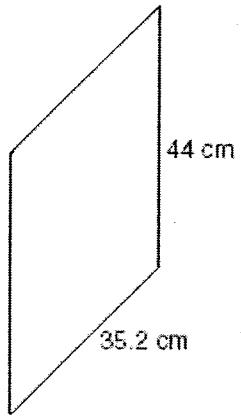
B



D



15. A certain parallelogram has the dimensions shown.
Which set of dimensions would produce a similar figure?



~~A. 17.6 cm, 88 cm~~

B. 70.4 cm, 176 cm

C. 105.6 cm, 132 cm

D. 140.8 cm, 220 cm

16. In triangle STR , $\overline{QP}$ and $\overline{TR}$ are parallel.

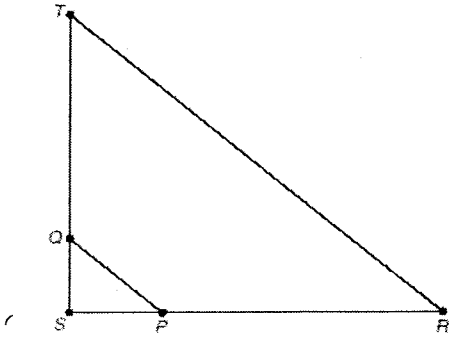
If SQ = 6 units, QT = 24 units, and the perimeter of triangle SQP is 20 units, what is the perimeter of triangle STR ?

A 80 units

B 100 units

C 320 units

D 500 units



17. To estimate the height of her school's gym, Nicole sights the top of the gym wall in a mirror that she has placed on the ground. The mirror is 3.6 meters from the base of the gym wall. Nicole is standing 0.5 meter from the mirror, and her height is about 1.8 meters. What is the height of the gym wall?