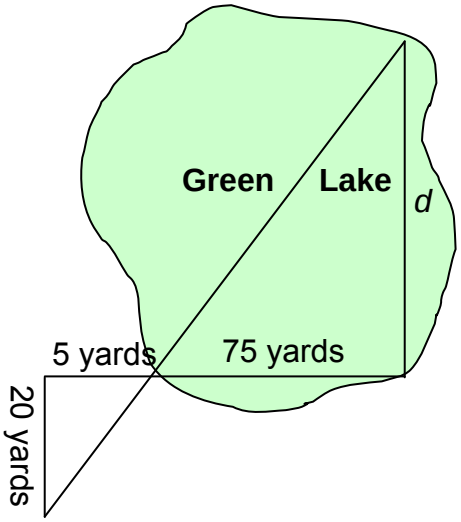
1. A barn is 12 feet **tall** and casts a **shadow** of 9 feet. At the same time, a silo next to the barn casts a **shadow** of 18 feet. How **tall** is the silo?

① ② ③ ④ ⑤

(1) 22
(2) 24
(3) 26
(4) 27
(5) 28

2. To measure the distance (*d*) across Green Lake, Bill marked off distances and drew the picture below. Find the distance (d) across Green Lake.



① ② ③ ④ ⑤

(1) 30
(2) 300
(3) 2500
(4) 3000
(5) 3500

3. Joyce is standing next to a telephone pole. Joyce is 5 feet **tall**, and her shadow measures 8 feet. The pole's shadow is 112 feet. How **tall** is the pole?

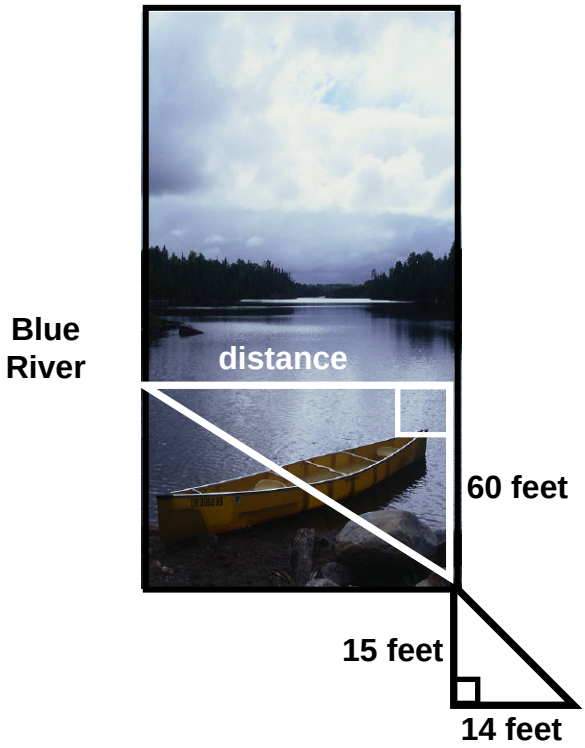
① ② ③ ④ ⑤

(1) 7
(2) 70
(3) 75
(4) 80
(5) 700

4. Laurie estimated the distance across Blue River by walking off distances and making the drawing below. Use her drawing to find the distance across the river.

① ② ③ ④ ⑤

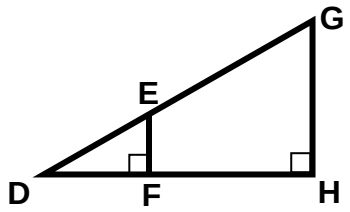
(1) 56
(2) 58
(3) 60
(4) 65
(5) 75



5. Side EF = 10 cm

Side DF = 16 cm

Side DH = 48 cm



What is the length of GH?

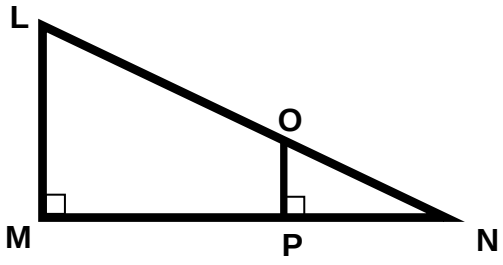
① ② ③ ④ ⑤

(1) 30
(2) 35
(3) 40
(4) 45
(5) 55

6. $\overline{LM}$ = 36 inches

$\overline{MN}$ = 80 inches

$\overline{PN}$ = 20 inches



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

① ② ③ ④ ⑤

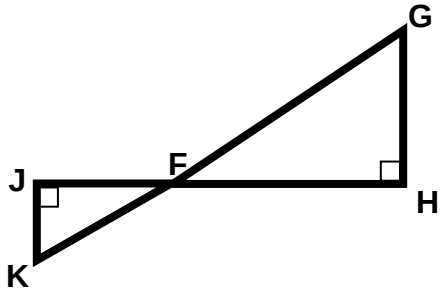
(1) 7
(2) 8
(3) 9
(4) 10
(5) 11

7. $\overline{JF}$ = 4 feet

$\overline{FH}$ = 12 feet

$\overline{JK}$ = 3 feet

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



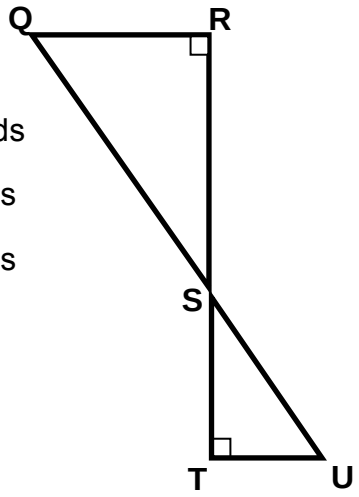
① ② ③ ④ ⑤

(1) 9
(2) 13
(3) 20
(4) 21
(5) 24

8. $\overline{RS}$ = 18 yards

$\overline{ST}$ = 6 yards

$\overline{TU}$ = 4 yards

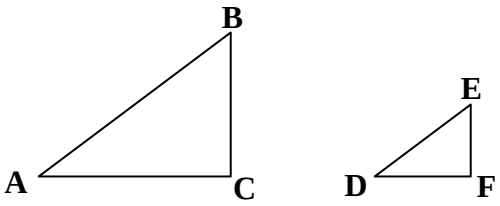


What is the length of $\overline{QR}$?

① ② ③ ④ ⑤

(1) 11
(2) 12
(3) 13
(4) 14
(5) 15

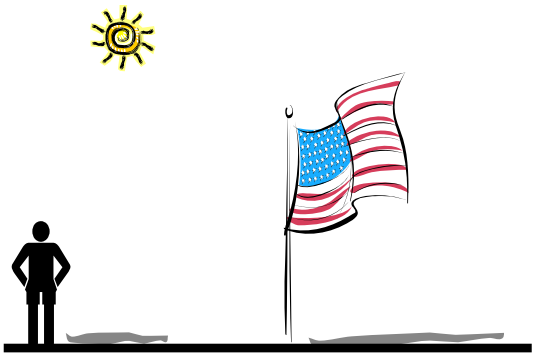
9. In the picture below,
Side *AC* = 24
Side *DF* = 15
Side *EF* = 10.
Find side *BC*.



① ② ③ ④ ⑤

(1) 16
(2) 24
(3) 36
(4) 240
(5) Not enough information given.

10. On a sunny day, Sylvia wanted to find the height of a flagpole without climbing it. She found that her 6 foot tall friend cast a 10 foot shadow. At the same time, the flagpole cast a 40 foot shadow. **How tall is the flagpole**?



① ② ③ ④ ⑤

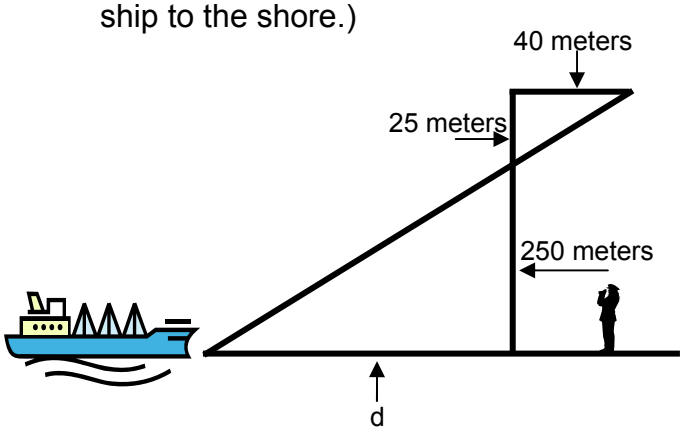
(1) 16 feet
(2) 24 feet
(3) 40 feet
(4) 240 feet
(5) 160 feet

11. Melissa wanted to find the height of a tower. The shadow cast by the tower was 42 feet. Melissa held a yardstick perpendicular to the ground. The shadow cast by the yardstick was 4 feet. **How tall is the tower?**

① ② ③ ④ ⑤

(1) 31.2 feet
(2) 31.5 feet
(3) 31.6 feet
(4) 31.8 feet
(5) 126 feet

12. An observer on the shore sees a ship anchored off the coast. To find the distance to the ship, he makes the measurements shown in the figure. How far is it from the shoreline to the ship?
(*d* represents the distance from the ship to the shore.)



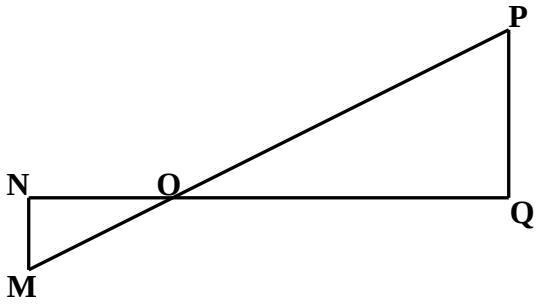
① ② ③ ④ ⑤

(1) 65 meters
(2) 210 meters
(3) 400 meters
(4) 500 meters
(5) 10,000 meters

13. A 5 foot high vertical stick casts a shadow 3 feet long. At the same time a vertical pole casts a shadow 36 feet long. **How tall is the pole**?

	⊘	⊘	⊘	
⊙	⊙	⊙	⊙	⊙
⓪	⓪	⓪	⓪	⓪
①	①	①	①	①
②	②	②	②	②
③	③	③	③	③
④	④	④	④	④
⑤	⑤	⑤	⑤	⑤
⑥	⑥	⑥	⑥	⑥
⑦	⑦	⑦	⑦	⑦
⑧	⑧	⑧	⑧	⑧
⑨	⑨	⑨	⑨	⑨

14. In the picture below,
MN = 10.
NO = 3.
QO =48.
Find the length of side *PQ.*



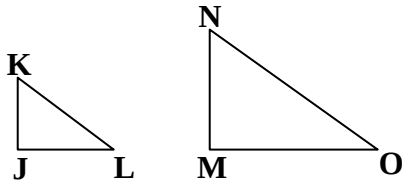
① ② ③ ④ ⑤

(1) 160
(2) 240
(3) 320
(4) 360
(5) 480

15. A six foot tall vertical post casts a five foot shadow. At the same time, a tree casts a 65 foot shadow.
How tall is the tree?

	⊘	⊘	⊘	
⊙	⊙	⊙	⊙	⊙
⓪	⓪	⓪	⓪	⓪
①	①	①	①	①
②	②	②	②	②
③	③	③	③	③
④	④	④	④	④
⑤	⑤	⑤	⑤	⑤
⑥	⑥	⑥	⑥	⑥
⑦	⑦	⑦	⑦	⑦
⑧	⑧	⑧	⑧	⑧
⑨	⑨	⑨	⑨	⑨

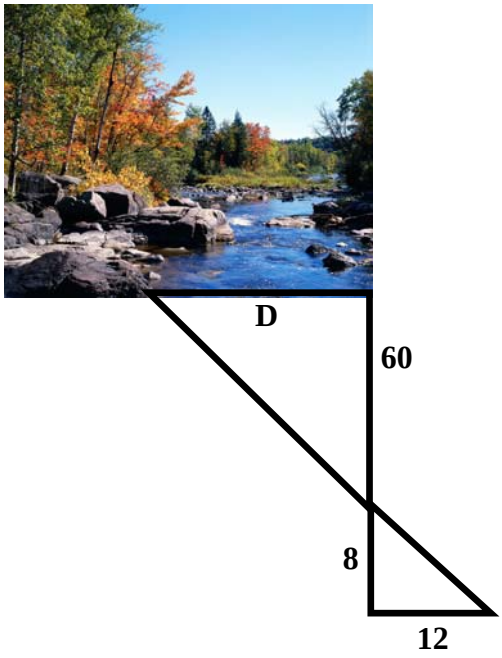
16. In triangle *JKL* below,
JK = 8 inches.
JL = 12 inches.
MN = 14 inches.
Find the length of side *MO*.



① ② ③ ④ ⑤

(1) 8 inches
(2) 12 inches
(3) 14 inches
(4) 21 inches
(5) 168 inches

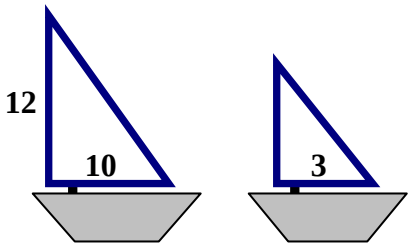
17. Find the distance across the river.



① ② ③ ④ ⑤

(1) 30
(2) 40
(3) 50
(4) 80
(5) 90

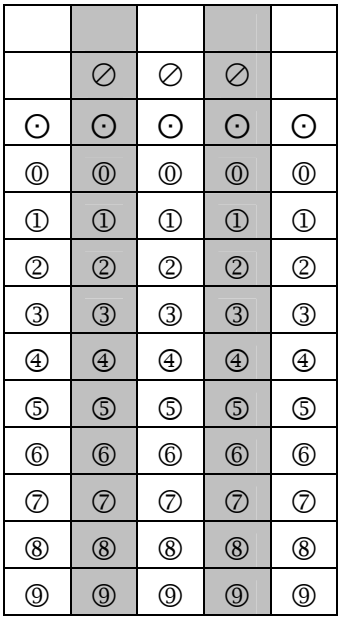
18. The sails of the two boats pictured at the right are similar triangles. Find the height in feet of the small sail.



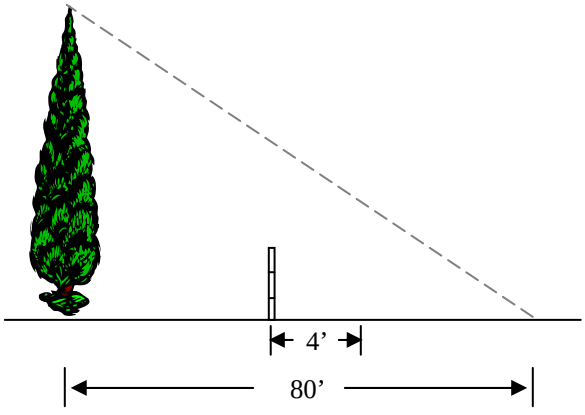
① ② ③ ④ ⑤

(1) 3.1 feet
(2) 3.2 feet
(3) 3.4 feet
(4) 3.6 feet
(5) 3.8 feet

19. A ten foot tall vertical post casts a five foot shadow. At the same time, a tree casts a 50 foot shadow. **How tall is the tree**?



20. To find the height of a piñon tree, Aaron found the length of the tree's shadow to be 80 feet long. At the same time, he held a yardstick perpendicular to the ground. The yardstick cast a shadow of 4 feet. What was the height of the tree?



① ② ③ ④ ⑤

(1) 20 feet
(2) 30 feet
(3) 40 feet
(4) 50 feet
(5) 60 feet