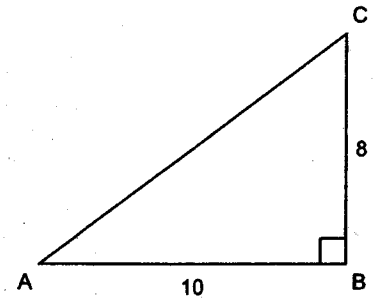
NAME: _____ BLOCK: ____ DATE: _____ K

MATH 10 - CHAPTER 2 - PRETEST

parent/guardian signature NEW 2015

Multiple Choice - PART A - No calculators - 5 minutes - page 1
Circle the choice that best completes the statement or answers the question.

1. Determine tan A and tan C.



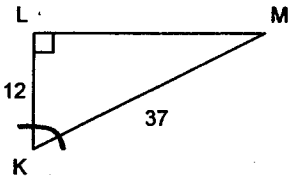
$\tan = \frac{\text{opp}}{\text{adj}}$

$\tan A = \frac{8}{10} = 0.8$

$\tan C = \frac{10}{8} = 1.\ldots$

a. tan A = 1.25; tan C = 0.8
b. tan A = 0.8; tan C = 0.7809...
c. tan A = 0.8; tan C = 1.25
d. tan A = 0.6247...; tan C = 1.25

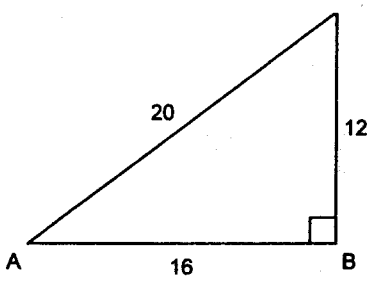
2. Determine the tangent ratio for ∠K.



$\tan K = \frac{LM}{12}$

a. $\frac{12}{35}$
b. $\frac{12}{37}$
c. $\frac{37}{12}$
d. $\frac{35}{12}$

3. Determine sin A and cos A to the nearest tenth.



$\sin = \frac{\text{opp}}{\text{hyp}}$

$\cos = \frac{\text{adj}}{\text{hyp}}$

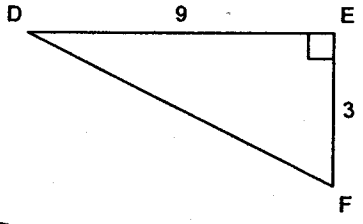
$\sin A = \frac{12}{20} = \frac{6}{10} = 0.6$

$\cos A = \frac{16}{20} = \frac{8}{10} = 0.8$

a. sin A = 1.25; cos A = 0.8
b. sin A = 0.6; cos A = 0.6
c. sin A = 0.6; cos A = 1.25
d. sin A = 0.6; cos A = 0.8

PART B - CALCULATOR MAY BE USED after 5 minutes

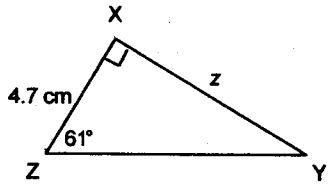
4. Determine the measure of ∠D to the nearest tenth of a degree.



$\tan D = \frac{3}{9}$

(a.) 18.4° b. 19.5° c. 70.5° d. 71.6°

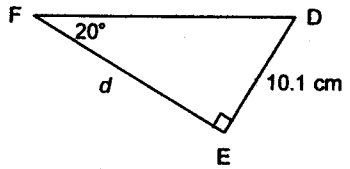
5. Determine the length of side *z* to the nearest tenth of a centimetre.



$\tan 61 = \frac{z}{4.7}$

a. 9.7 cm b. 2.6 cm c. 5.4 cm (d.) 8.5 cm

6. Determine the length of side *d* to the nearest tenth of a centimetre.

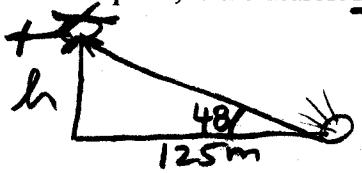


$\tan 20 = \frac{10.1}{d}$

a. 29.5 cm (b.) 27.7 cm c. 10.7 cm d. 3.7 cm

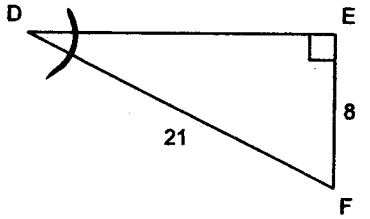
7. A helicopter is ascending vertically. On the ground, a searchlight is 125 m from the point where the helicopter lifted off the ground. It shines on the helicopter and the angle the beam makes with the ground is 48°. How high is the helicopter at this point, to the nearest metre?

a. 187 m
b. 93 m
c. 113 m
(d.) 139 m



$\tan 48 = \frac{h}{125}$

8. Determine the measure of ∠D to the nearest tenth of a degree.

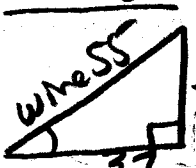


$\sin D = \frac{8}{21}$

a. 67.6° b. 69.1° (c.) 22.4° d. 20.9°

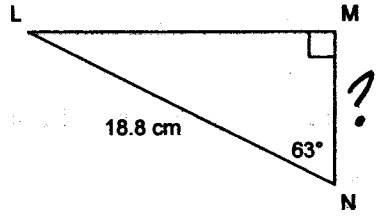
9. A 55-ft. guy wire helps to support a tower. The wire is anchored to the ground 37 ft. from the base of the tower. What is the measure of the angle formed between the wire and the ground, to the nearest degree?

a. 48°
b. 56°
c. 34°
d. 42°



$\cos A = \frac{37}{55}$

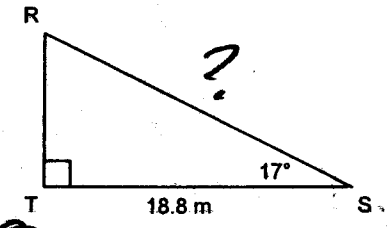
10. Determine the length of MN to the nearest tenth of an centimetre.



$\cos 63 = \frac{MN}{18.8}$

a. 36.9 cm b. 41.4 cm c. 8.5 cm d. 16.8 cm

11. Determine the length of RS to the nearest tenth of a metre.

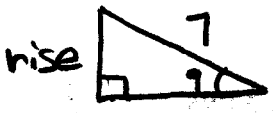


$\cos 17 = \frac{18.8}{RS}$

a. 19.7 m b. 5.7 m c. 18.0 m d. 64.3 m

12. A wheelchair ramp is 7.0 m long. Its angle of inclination is 9°. Calculate the rise of the ramp to the nearest tenth of a metre.

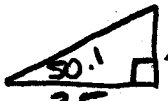
a. 1.0 m
b. 44.7 m
c. 1.1 m
d. 6.9 m



$\sin 9 = \frac{rise}{7}$

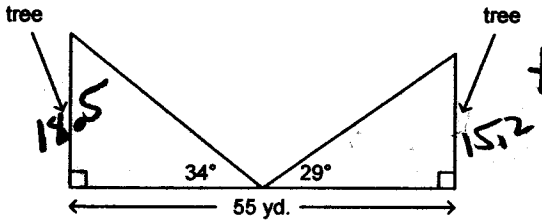
13. At a point 25 ft. from the base of a totem pole, the angle of elevation of the top of the pole is 50.1°. How tall is the totem pole to the nearest foot?

a. 39 ft.
b. 16 ft.
c. 30 ft.
d. 21 ft.



$\tan 50.1 = \frac{t}{25}$

14. Two trees are 55 yd. apart. From a point halfway between the trees, the angles of elevation of the tops of the trees are measured. What is the height of each tree to the nearest yard?



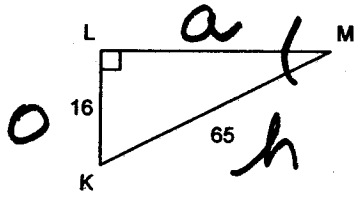
$\tan 34 = \frac{t}{27.5}$

$\tan 29 = \frac{t}{27.5}$

a. 33 yd.; 31 yd.
b. 19 yd.; 15 yd.
c. 41 yd.; 50 yd.
d. 40 yd.; 49 yd.

SHOW YOUR WORK SECTION

15. a) For ∠M in the triangle below, **label** the hypotenuse and the opposite and adjacent sides.
b) Determine tan M to the **nearest hundredth.**



a
O
h

$\tan M = \frac{16}{LM}$ ← $65^2 - 16^2 = LM^2$ ← $63 = LM$

$\tan M = 0.25$

16. A ski jump is 116 m long. It has a vertical rise of 54 m. What is the angle of inclination of the jump to the nearest **tenth of a degree**?

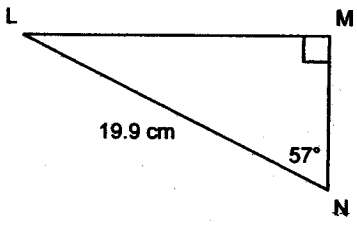
WORK

$\sin A = \frac{54}{116}$

ANSWER

$A = 27.7°$

17. Solve this right triangle. Give the measures to the **nearest tenth.**



WORK

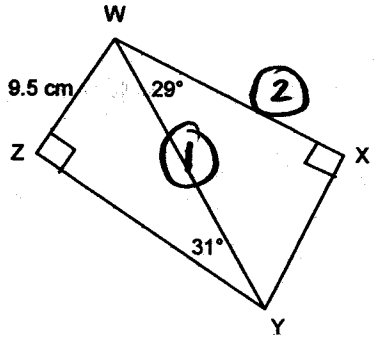
$\angle L = 90 - 57 = 33°$

$LM \Rightarrow \sin 57 = \frac{LM}{19.9}$

$MN \Rightarrow \cos 57 = \frac{MN}{19.9}$ or P.T.

ANSWERS $\angle L = 33°$ LM = 16.7 MN = 10.8

18. Determine the length of WX to the nearest **tenth** of a centimetre.



WORK

① $\sin 31 = \frac{9.5}{WY}$

$WY = 18.445$

② $\cos 29 = \frac{WX}{WY}$

ANSWER

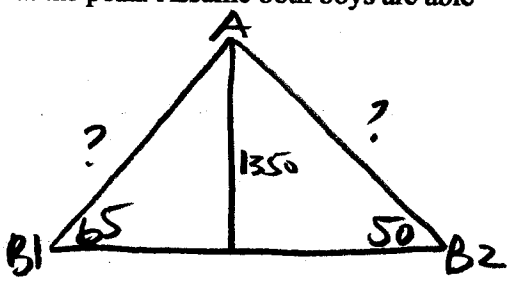
16.1 cm

19. Two boys are standing at the same elevation on opposite sides of a mountain. The peak of the mountain is 1350 ft. above them. Their angles of elevation to the top of the mountain are 65° and 50°. Determine the total distance, to the nearest foot, both boys have to hike in order to meet at the peak. Assume both boys are able to hike in a straight line to the peak.

WORK

$\sin 65 = \frac{1350}{AB_1}$ $\quad \sin 50 = \frac{1350}{AB_2}$

$= 1489.56$ $\quad + \quad = 1762.2998$



ANSWER

3252 ft

20. In the diagram below, a Coast Guard patrol boat is at C, which is 11.7 km south of Point Atkinson lighthouse. A sailboat in distress is at A, which is 7.3 km west of the lighthouse.

a) How far is the patrol boat from the sailboat, to the nearest tenth of a kilometre?

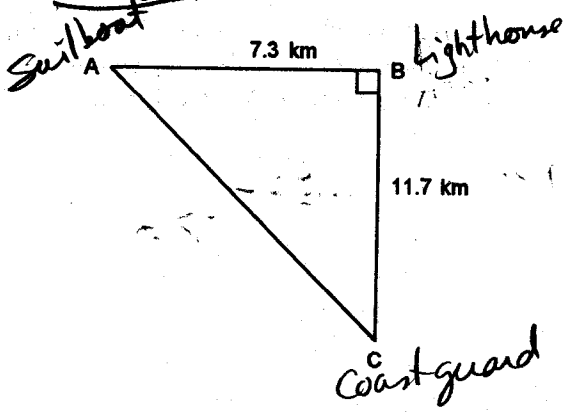
WORK

$AC^2 = 7.3^2 + 11.7^2$

ANSWER

13.8 km

b) At what angle to BC should the patrol boat travel to reach the sailboat? Give the answer to the nearest tenth of a degree.



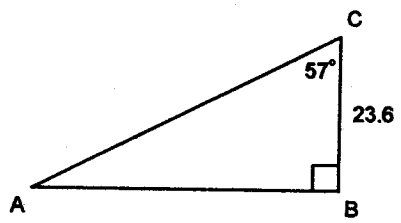
WORK

$\tan C = \frac{7.3}{11.7}$

ANSWER 32.0°

21. Determine the area of ΔABC to the nearest tenth of a square unit.

WORK



$A = \frac{bh}{2}$

$= \frac{K \times 23.6}{2}$

base = AB

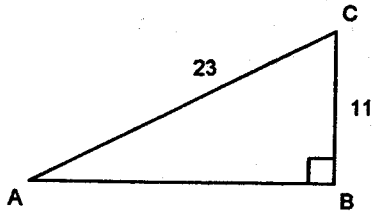
$\tan 57 = \frac{AB}{23.6}$

$AB = 36.34$

ANSWER

428.8

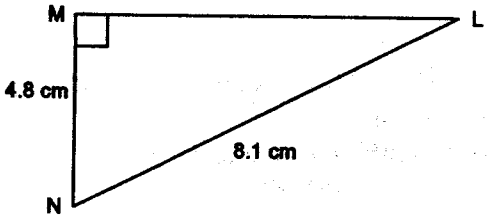
22. Determine the measures of $\angle A$ and $\angle C$ to the nearest **tenth** of a degree.



WORK $\sin A = \frac{11}{23}$ $\sin C = \frac{11}{23}$

ANSWER $A = 28.6^\circ$ $C = 61.4^\circ$

23. Solve ΔLMN. Give the measures to the nearest **tenth**.



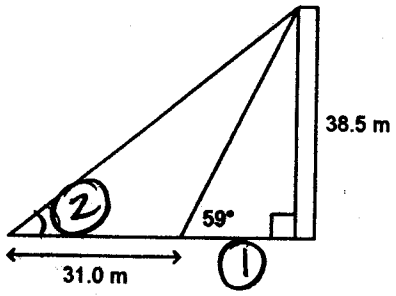
WORK $8.1^2 = LM^2 + 4.8^2$

$\angle L \Rightarrow \sin L = \frac{4.8}{8.1}$

$\angle N \Rightarrow \cos N = \frac{4.8}{8.1}$

ANSWER $\angle L = 36.3^\circ$ $\angle N = 53.7^\circ$ $ML = 6.5$

24. A Girl Guide measured the angle of elevation of the top of a monument as 59°. The height of the monument is 38.5 m. She then walked 31.0 m due west from the point where she measured the angle of elevation. Determine the angle of elevation of the monument from her new location to the nearest **tenth** of a degree.



WORK

① $\tan 59 = \frac{38.5}{①} \Rightarrow 23.133$

② $\tan A = \frac{38.5}{31 + 23.133}$

ANSWER

35.4°