

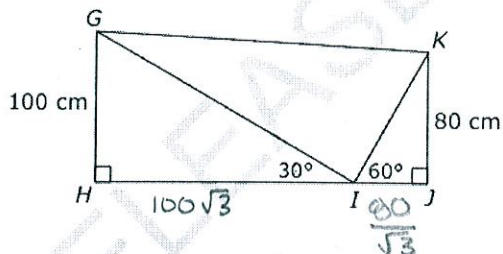
Trigonometry: Final Exam Prep

Math II

Name: Key!

Directions: The following questions are sample items similar to those found on the EOC Exam. Answer each to the best of your ability.

1. What is the **approximate** length of \overline{HJ} in the diagram below?



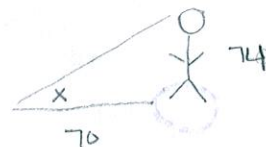
- A 292 cm
- B 265 cm
- C 219 cm
- D 196 cm

$$80 = x\sqrt{3}$$

$$\frac{80\sqrt{3}}{3} = x$$

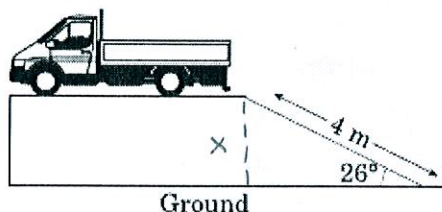
2. Billy is 74 in. tall, and his shadow is 70 in. long. What is the **approximate** angle of elevation of the sun?

- A 19°
- B 43°
- C 47°
- D 71°



$$\tan x = \frac{74}{70}$$

3. A truck is at the top of a ramp as shown below.



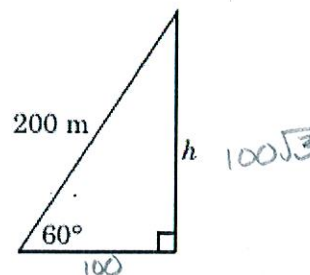
Approximately how high above the ground is the truck?

- A 4.45 m
- B 3.59 m
- C 1.95 m
- D 1.75 m

$$\sin 26 = \frac{x}{4}$$

$$x = 4 \sin 26$$

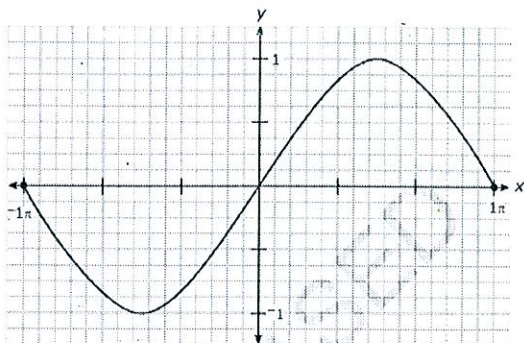
4. A right triangle is shown below.



What is the **approximate** value of h ?

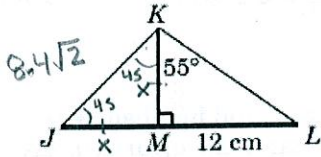
- A 100 meters
- B 115 meters
- C 140 meters
- D 173 meters

5. Which function is graphed below?



- A $y = \sin x$
- B $y = \cos x$
- C $y = \tan x$
- D $y = \cot x$

6. \overline{KM} is an altitude of $\triangle JKL$, and $\overline{KM} \cong \overline{JM}$. The measure of $\angle LKM$ is 55° , and $ML = 12$ cm.



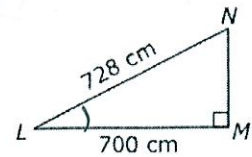
What is the **approximate** length of \overline{JK} ?

- A 8.4 cm
- B 11.9 cm
- C 20.7 cm
- D 24.2 cm

$$\tan 55 = \frac{12}{x}$$

$$x = \frac{12}{\tan 55} \approx 8.4$$

7. In right triangle LMN , $LN = 728$ cm and $LM = 700$ cm.



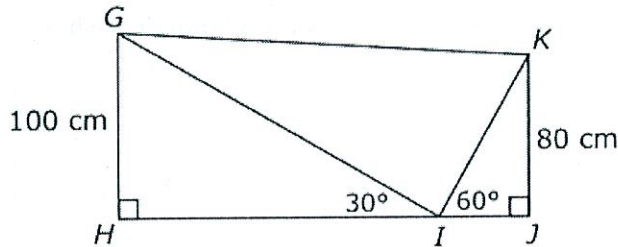
What is the **approximate** measure of $\angle NLM$?

- A 15.9°
- B 16.6°
- C 73.4°
- D 74.1°

$$\cos \theta = \frac{700}{728}$$

$$\theta = 15.9$$

8. What is the **approximate** length of \overline{HJ} in the diagram below?

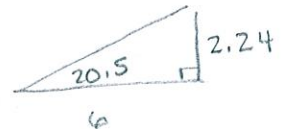


- A 292 cm
- B 265 cm
- C 219 cm
- D 196 cm

See #1

9. Laila and Casey both built bike ramps. Laila's ramp has a base that is 6 feet long and is slanted at an angle of 20.5° from the ground. Casey's ramp has a base that is 8 feet long and is slanted at an angle of 16° from the ground. Which statement is true?

- A Laila's and Casey's ramps are similar triangles.
- B Laila's ramp is about 6 inches shorter than Casey's ramp.
- C Laila's ramp is about 6 inches taller than Casey's ramp.
- D Laila's and Casey's ramps are approximately the same height.



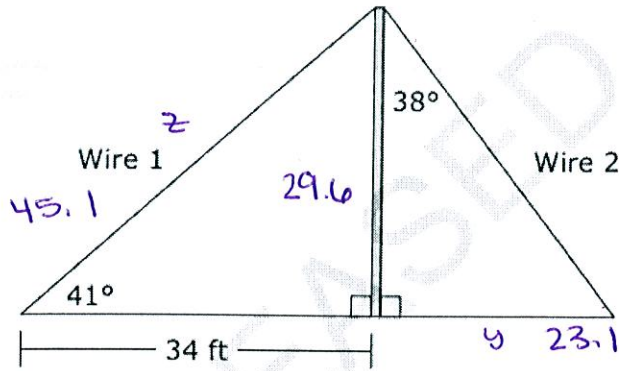
$$\tan 20.5 = \frac{x}{6}$$

$$x = 6 \tan 20.5$$

$$\tan 16 = \frac{x}{8}$$

$$x = 8 \tan 16$$

In the figure below, a pole has two wires attached to it, one on each side, forming two right triangles.



Based on the given information, answer the questions below.

- How tall is the pole? **29.6**
- How far from the base of the pole does Wire 2 attach to the ground? **23.1**
- How long is Wire 1? **45.1**

$$\tan 41 = \frac{x}{34}$$

$$\tan 38 = \frac{y}{29.6}$$

$$y = 23.1$$

$$\cos 41 = \frac{34}{z}$$

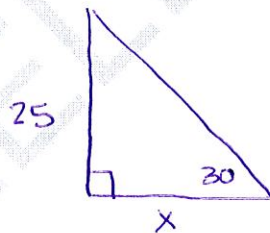
$$z = \frac{34}{\cos 41} = 45.1$$

$$x = 34 \tan 41$$

$$y = 29.6 \tan 38$$

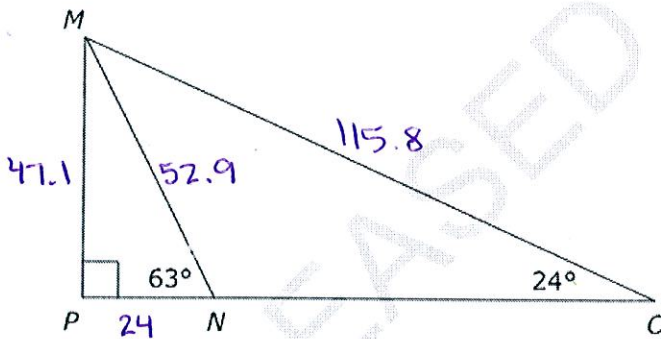
11. A rope is attached to the top of a 25-foot pole. The pole is perpendicular to the ground. **Approximately** how far from the base of the pole must the rope be attached to make a 30° angle with the ground?

- A 12.5 feet
- B 14.4 feet
- C 43.3 feet**
- D 50.0 feet



$$25\sqrt{3} = 43.3$$

12. In the diagram below, $\triangle MPO$ is a right triangle and $\overline{PN} = 24$ ft.



$$\tan 63 = \frac{x}{24}$$

$$\tan 24 = \frac{47.1}{y}$$

$$x = 47.1$$

$$y = 105.8$$

$$\cos 63 = \frac{24}{h}$$

$$h = 52.9$$

- What is the length of \overline{MP} ? **47.1 ft**
- How much longer is \overline{MO} than \overline{NM} ? **62.9 ft**
- How far is point O from point N? **81.8 ft**

$$\sin 24 = \frac{47.1}{z} \quad z = 115.8$$