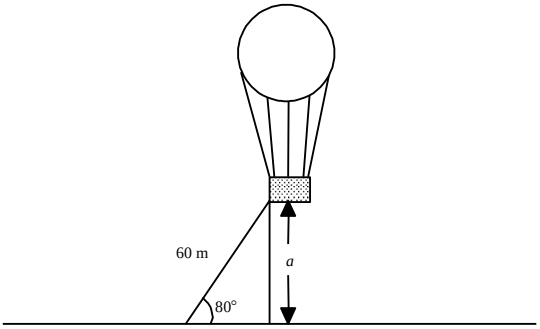
Trig Practice Questions NO CALCULATOR Name: _____

1

A hot air balloon is secured to the ground by a 60 m long rope. A gust of wind caused it to veer slightly, creating an 80° angle between the rope and the ground.



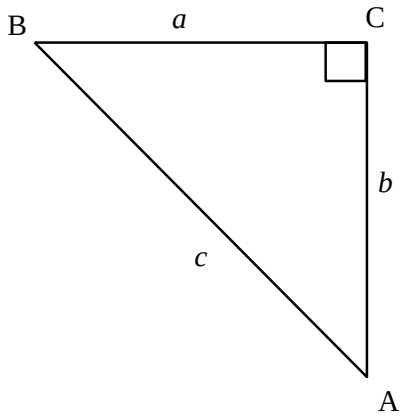
Which of the following equations can be used to calculate the altitude of the hot air balloon?

A) $a = 60 \sin 80°$ B) $a = 60 \cos 80°$

C) $a = \frac{60}{\cos 80°}$ D) $a = \frac{60}{\sin 80°}$

2

The teacher asked his students to find the trigonometric ratio to be used to calculate the measurement of angle A in the following right triangle.



Which of the following equations is correct?

A) $\sin A = \frac{b}{c}$ B) $\sin A = \frac{a}{b}$

C) $\cos A = \frac{a}{c}$ D) $\cos A = \frac{b}{c}$

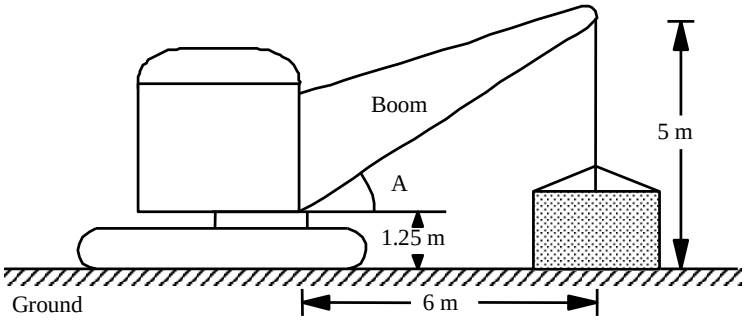
3

Triangle RST is right-angled at S. Which of the following expressions defines the ratio of the length of segment ST to the length of segment RS?

A) sin R B) sin S C) cos S D) tan R

4

A crane is transporting a large block of cement.
The crane operator wants to determine the angle of elevation A of the boom.



Which equation can be used to calculate the measure of angle A?

A) $\sin A = \frac{3.75}{6}$

B) $\cos A = \frac{6}{5}$

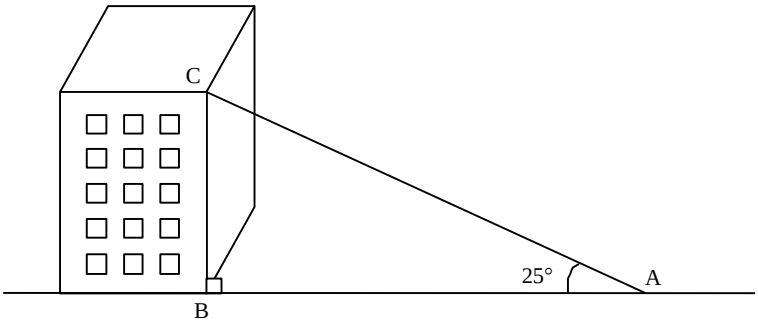
C) $\tan A = \frac{3.75}{6}$

D) $\tan A = \frac{5}{6}$

5

In the figure below, a person situated at point A sees
the top of a building at an angle of elevation of 25°.

Height BC of the building is known.

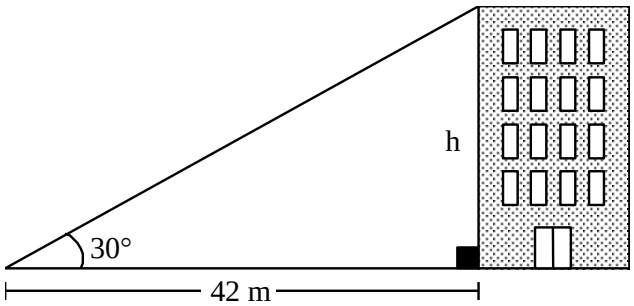


What expression can be used to calculate the distance AB
between the person and the building?

A) $\text{m}\,\overline{BC} \times \tan 25°$ B) $\text{m}\,\overline{BC} \times \cos 25°$ C) $\frac{\text{m}\,\overline{BC}}{\tan 25°}$ D) $\frac{\text{m}\,\overline{BC}}{\sin 25°}$

6

If you are positioned 42 m from the foot of a building, the
angle of elevation of the top of the building is 30°.



Which equation can be used to calculate the height *h* of this building?

A) $h = 42 \sin 30°$

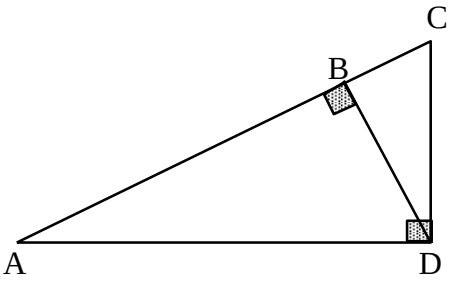
B) $h = \frac{42}{\sin 30°}$

C) $h = 42 \tan 30°$

D) $h = \frac{42}{\tan 30°}$

7

In the triangle ACD shown below, angle D measures 90°.
Segment BD is an altitude.



Which of the following statements is TRUE?

A) $\cos C = \frac{m\,\overline{BC}}{m\,\overline{BD}}$

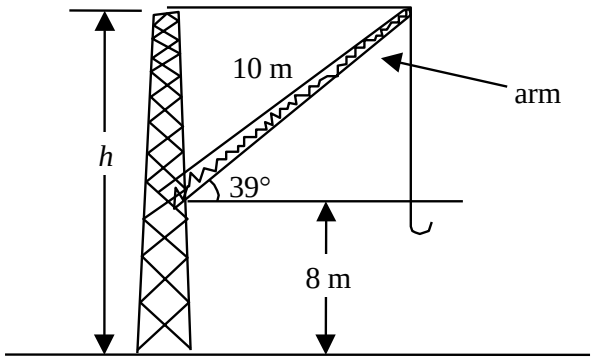
C) $\tan C = \frac{m\,\overline{BD}}{m\,\overline{BC}}$

B) $\tan A = \frac{m\,\overline{BD}}{m\,\overline{AD}}$

D) $\sin A = \frac{m\,\overline{AD}}{m\,\overline{AC}}$

8

The base of the arm of a crane is 8 metres above the ground. The arm is 10 metres long.
Refer to the diagram at right.



If the angle of elevation of the arm is 39°, which of the following formulas can be used to calculate the height *h* of the tower?

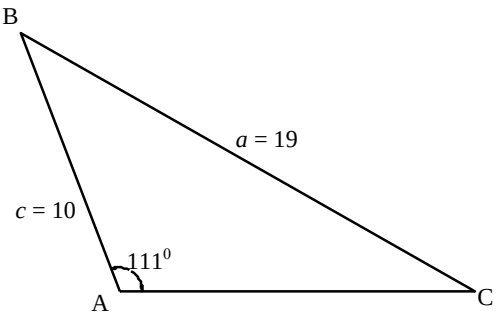
A) $h = 10 \sin 39° + 8$

C) $h = 10 \cos 39° + 8$

B) $h = \frac{10}{\sin 39°} + 8$

D) $h = \frac{10}{\cos 39°} + 8$

9 What is the value of sin C in triangle ABC?



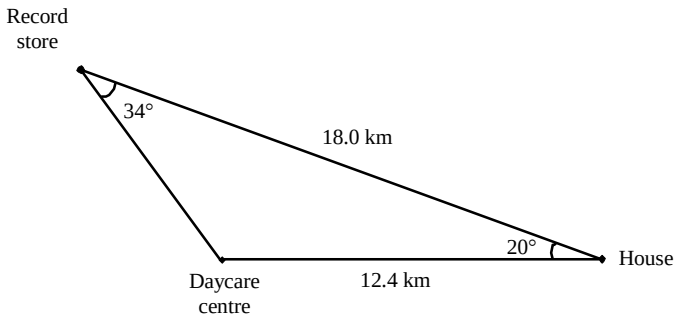
A) $\frac{10}{19}$

B) $\frac{19 \sin 69°}{10}$

C) $\frac{10 \sin 21°}{19}$

D) $\frac{10 \sin 69°}{19}$

10 Upon leaving her house, Stephanie travelled 18.0 km to the record store. On the way back, she stopped at the day-care centre to pick up her brother. Her route is represented by the following figure:



Which of the following expressions can be used to calculate the distance between the day-care centre and the record store?

A) $\frac{12.4 \sin 20°}{\sin 34°}$

B) $\frac{12.4 \sin 34°}{\sin 20°}$

C) $\frac{18.0 \sin 20°}{\sin 34°}$

D) $\frac{18.0 \sin 34°}{\sin 126°}$

11 Given triangle ABC in which angle B measures 15°, angle C measures 45° and side BC measures 6 m.

What is the measure of side AB in metres?

A) 18

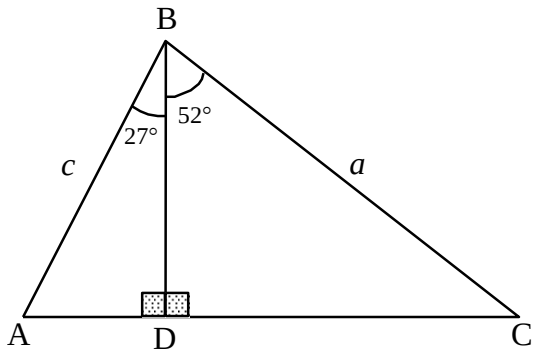
B) $2\sqrt{6}$

C) $3\sqrt{2}$

D) $6\sqrt{2}$

12 Segment BD is the height of triangle ABC below.

Which expression can be used to calculate the measure of segment AC?



A) $a \sin 52° + c \sin 27°$

B) $\frac{\cos 52°}{a} + \frac{\cos 27°}{c}$

C) $\frac{\sin 52°}{a} + \frac{\sin 27°}{c}$

D) $a \cos 52° + c \cos 27°$

13

John lives in Town A and Eric lives in Town B, 4 km away. They both see the same airplane in the sky overhead between the two towns. John sees the airplane at an angle of elevation of 28°. At the same time, Eric sees the airplane at an angle of elevation of 40°.

Which of the following expressions could be used to find the altitude of the airplane, in kilometres?

A) $\dfrac{4 \sin 28° \sin 40°}{\sin 112°}$

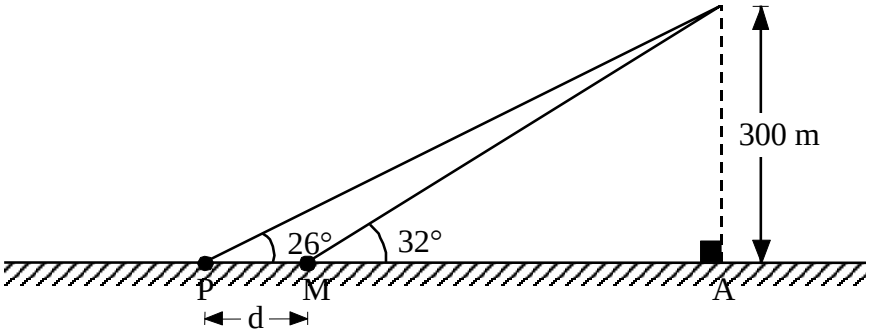
B) $\dfrac{4(\sin 28° + \sin 40°)}{\sin 112°}$

C) $\dfrac{4 \sin 112°}{\sin 28° \sin 40°}$

D) $\dfrac{4 \sin 112°}{\sin 28° + \sin 40°}$

14

Peter and Marlene are situated at points P and M respectively to watch a parachutist who is 300 m above the ground. Peter observes the parachutist at an angle of elevation of 26° and Marlene observes the parachutist at an angle of elevation of 32°.



What expression can be used to solve for the distance *d* between Peter and Marlene?