## MPM2D - Worksheet - Label Triangles & Select Trigonometric Ratios

For each of the following questions,
(a) identify angle of interest,
(b) label the sides,
(c) write the trigonometric ratio,
(d) solve for the unknown.

1.

A ___ C
20 cm
a
23°
B

2.

A ___ C
7 cm
a
29°
B

3.

39 cm
C ___ A
37°
a
B

4.

A ___ C
11 cm
a
21°
B

5.

B
10 cm
a
57°
C ___ A

6.

A ___ C
11 cm
a
31°
B

7.

B
12 cm
a
43°
C ___ A

8.

28 cm
C ___ A
17°
a
B

9.

B

13 cm

a

C 58° A

14.

32 cm

C 29° A

a

B

10.

A C

8 cm a

51°

B

15.

A C

20 cm a

52°

B

11.

13 cm
C 44° A

a

B

16.

28 cm
C 58° A

a

B

12.

B

20 cm

a

30°
C A

17.

29 cm
C 67° A

a

B

13.

39 cm
C 51° A

a

B

18.

B

16 cm

a
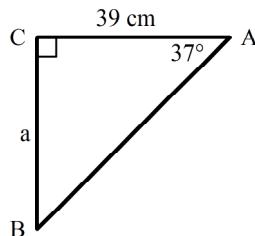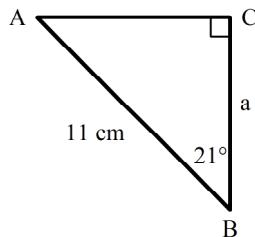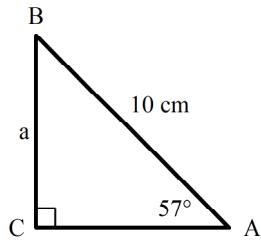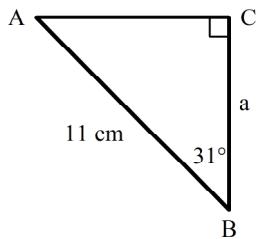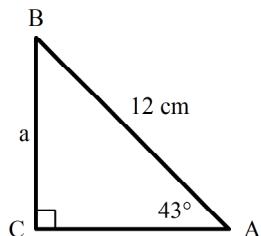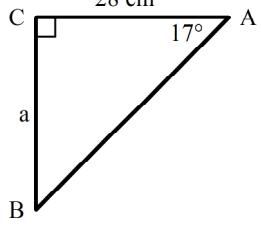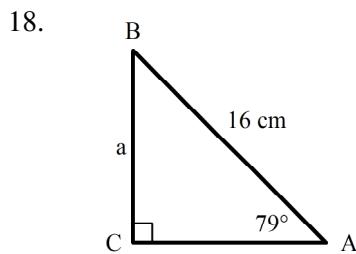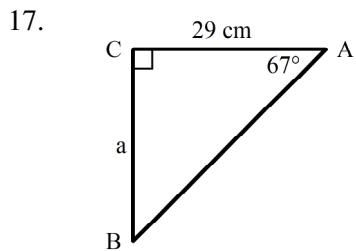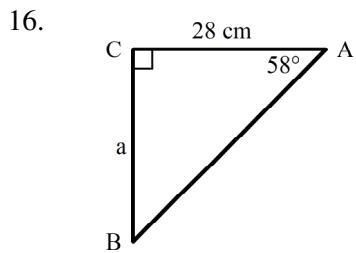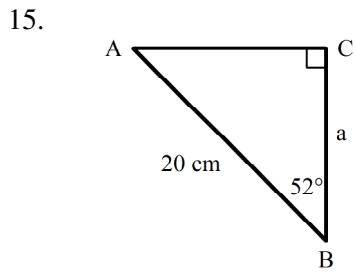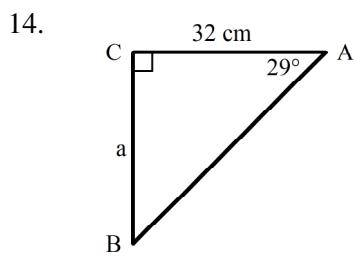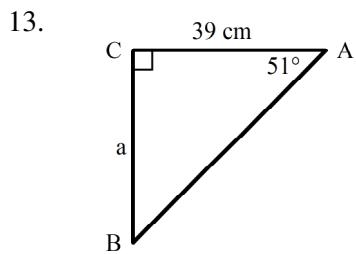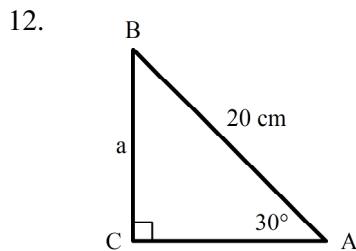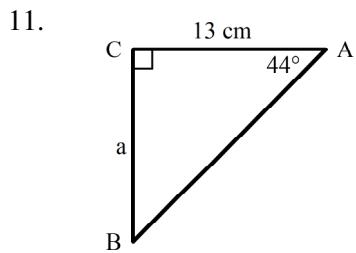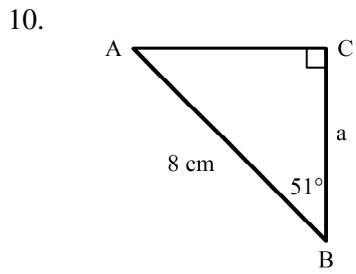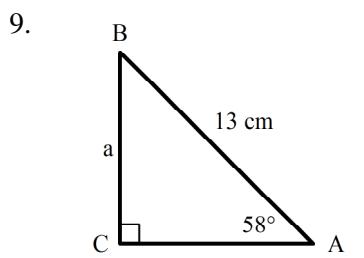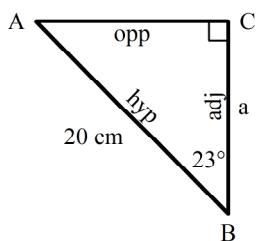
79°
C A

MPM2D - Worksheet - Label Triangles & Select Trigonometric Ratios
Answer Section

SHORT ANSWER

1.
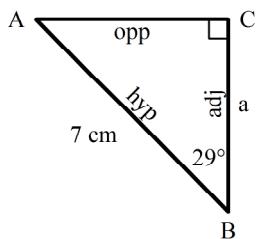
$$\cos A = \frac{adj}{hyp}$$

$$\cos 23° = \frac{a}{20}$$

$$a = 20(\cos 23°)$$

$$a = 18.4\,cm$$

2.
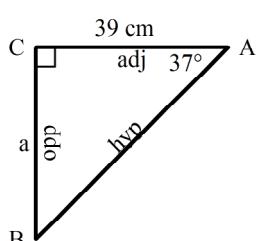
$$\cos A = \frac{adj}{hyp}$$

$$\cos 29° = \frac{a}{7}$$

$$a = 7(\cos 29°)$$

$$a = 6.1\,cm$$

3.
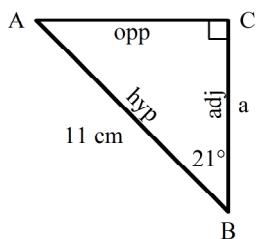
$$\tan A = \frac{opp}{adj}$$

$$\tan 37° = \frac{a}{39}$$

$$a = 39(\tan 37°)$$

$$a = 29.4\,cm$$

4.
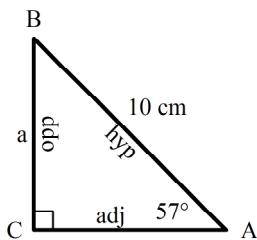
$$\cos A = \frac{adj}{hyp}$$

$$\cos 21° = \frac{a}{11}$$

$$a = 11(\cos 21°)$$

$$a = 10.3\,cm$$

5.
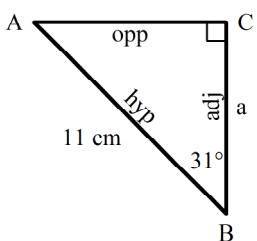
$$\sin A = \frac{opp}{hyp}$$

$$\sin 57° = \frac{a}{10}$$

$$a = 10(\sin 57°)$$

$$a = 8.4\,cm$$

6.
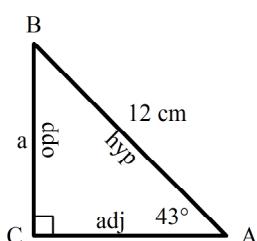
$$\cos A = \frac{adj}{hyp}$$

$$\cos 31° = \frac{a}{11}$$

$$a = 11(\cos 31°)$$

$$a = 9.4\,cm$$

7.
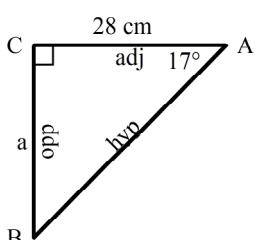
$$\sin A = \frac{opp}{hyp}$$

$$\sin 43° = \frac{a}{12}$$

$$a = 12(\sin 43°)$$

$$a = 8.2\,cm$$

8.
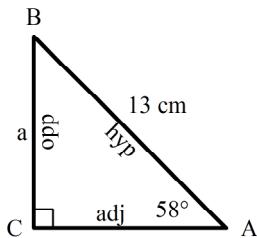
$$\tan A = \frac{opp}{adj}$$

$$\tan 17° = \frac{a}{28}$$

$$a = 28(\tan 17°)$$

$$a = 8.6\,cm$$

9.
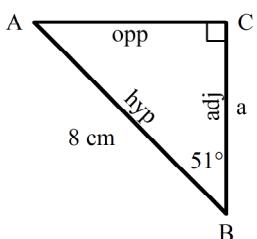
$$\sin A = \frac{opp}{hyp}$$

$$\sin 58° = \frac{a}{13}$$

$$a = 13(\sin 58°)$$

$$a = 11\,cm$$

10.
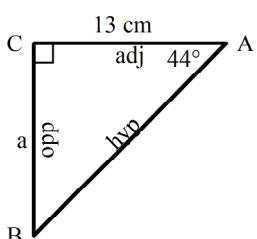
$$\cos A = \frac{adj}{hyp}$$

$$\cos 51° = \frac{a}{8}$$

$$a = 8(\cos 51°)$$

$$a = 5\,cm$$

11.
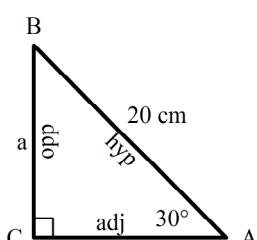
$$\tan A = \frac{opp}{adj}$$

$$\tan 44° = \frac{a}{13}$$

$$a = 13(\tan 44°)$$

$$a = 12.6\,cm$$

12.
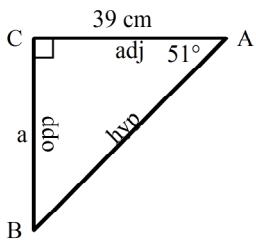
$$\sin A = \frac{opp}{hyp}$$

$$\sin 30° = \frac{a}{20}$$

$$a = 20(\sin 30°)$$

$$a = 10\,cm$$

13.
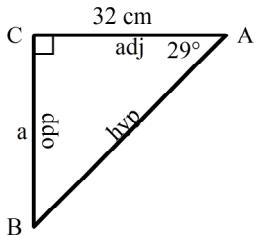
$$\tan A = \frac{opp}{adj}$$

$$\tan 51° = \frac{a}{39}$$

$$a = 39(\tan 51°)$$

$$a = 48.2 \, cm$$

14.
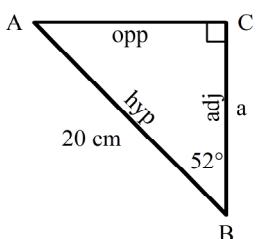
$$\tan A = \frac{opp}{adj}$$

$$\tan 29° = \frac{a}{32}$$

$$a = 32(\tan 29°)$$

$$a = 17.7 \, cm$$

15.
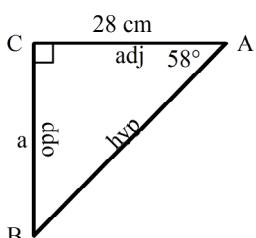
$$\cos A = \frac{adj}{hyp}$$

$$\cos 52° = \frac{a}{20}$$

$$a = 20(\cos 52°)$$

$$a = 12.3 \, cm$$

16.
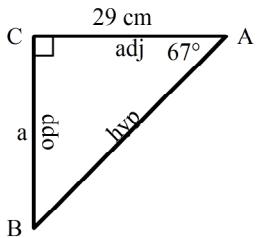

$$\tan A = \frac{opp}{adj}$$

$$\tan 58° = \frac{a}{28}$$

$$a = 28(\tan 58°)$$

$$a = 44.8 \, cm$$

17.

Triangle with C at top-left (right angle), A at top-right, B at bottom-left. Top side CA = 29 cm labeled "adj", angle at A = 67°. Left side a labeled "opp". Hypotenuse labeled "hyp".
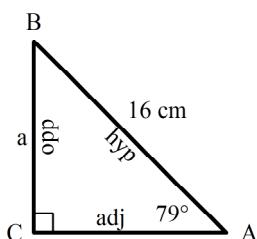
$$\tan A = \frac{opp}{adj}$$

$$\tan 67° = \frac{a}{29}$$

$$a = 29(\tan 67°)$$

$$a = 68.3\,cm$$

18.

Triangle with B at top, C at bottom-left (right angle), A at bottom-right. Side BA = 16 cm labeled "hyp", angle at A = 79°. Left side a labeled "opp". Bottom side labeled "adj".

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

$$\sin 79° = \frac{a}{16}$$

$$a = 16(\sin 79°)$$

$$a = 15.7\,cm$$