Find the value of the indicated arc in ⊙A.

1. $m\widehat{BC}$
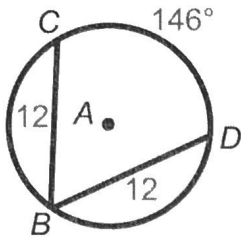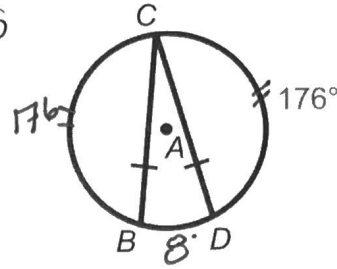
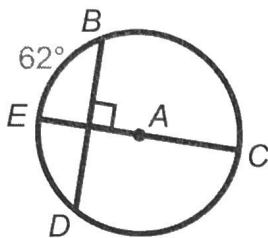C   146°

12 A.

                D

B   12

2. $m\widehat{BD}$

C

176̷   176°

A

B 8· D

360
- 176
−176
  8·

3. $m\widehat{BC}$

B

62°

E   A

                C

D

4. $m\widehat{BD}$

94°   C

A 2

B 2

        D

360
−94
266/2 = 133·

5. $m\widehat{BD}$

B   C

110°

        A   D

E

6. $m\widehat{BD}$

C

A•
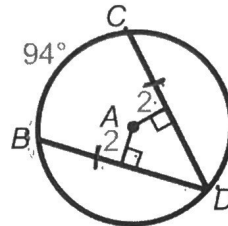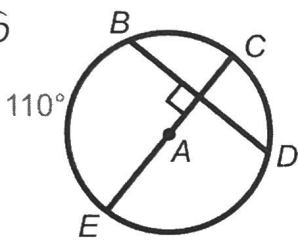
B   D
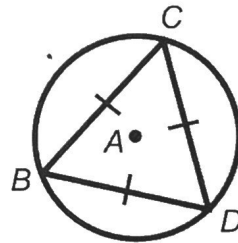
$\frac{360}{3} = 120°$

Find the value of x and/or y.

7.

64°

        y

x
        4

8.

y   x=8

        6

16

8

y

6
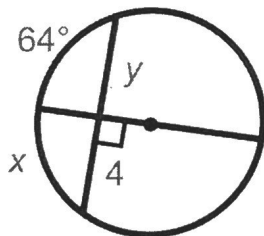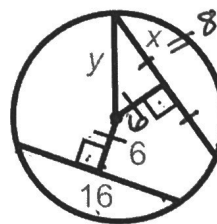
x=8

$6^2 + 8^2 = y^2$
$36 + 64 = y^2$
$100 = y^2$
$\sqrt{100} = \boxed{10 = y}$

9.

x
        3
y   15

10. AB = 32

x   9

A 16 32 16 B

x   9
        16

$9^2 + 16^2 = x^2$
$\sqrt{337} = \sqrt{x^2}$
$\boxed{x \approx 18.4}$

10

11.

52°
(6x -2)°
y+1
2y -5

12.

4x -1
17

$17 = 4x - 1$
$+1 \qquad +1$
$18 = 4x$
$\boxed{x = 4.5}$

13.

10
10
4x+1
2x+15

14.

A
12
x
10
20
10
12
B

x
12
10

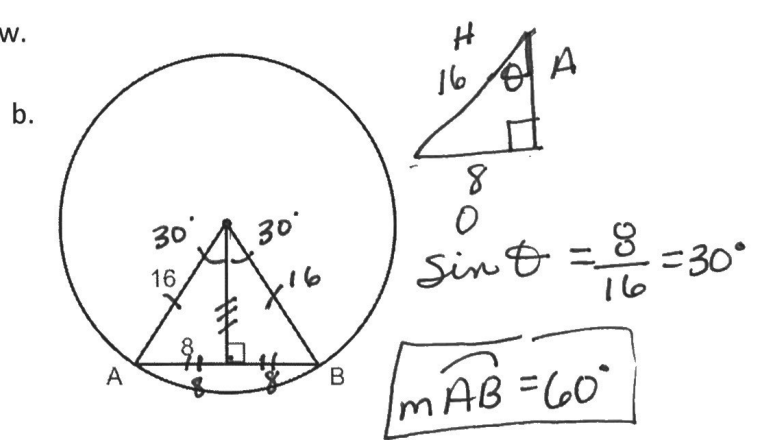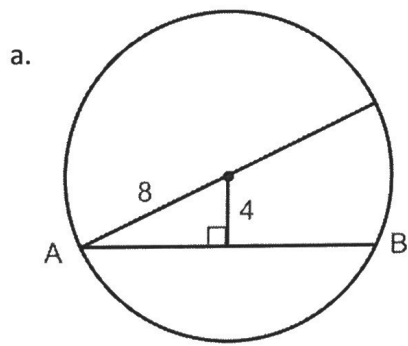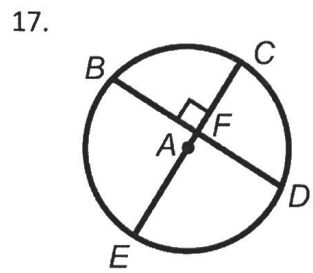$x^2 + 10^2 = 12^2$
$x^2 + 100 = 144$
$ -100 \quad -100$
$x^2 = 44$
$\boxed{x \approx 6.6}$

15.

7x -13
3x -1
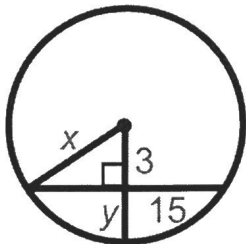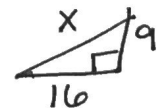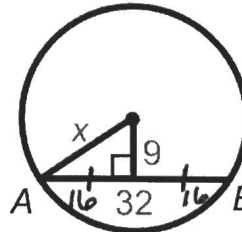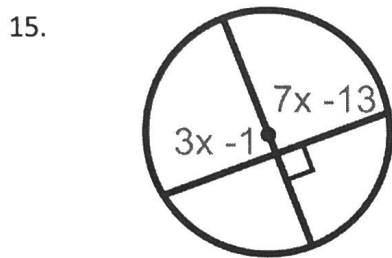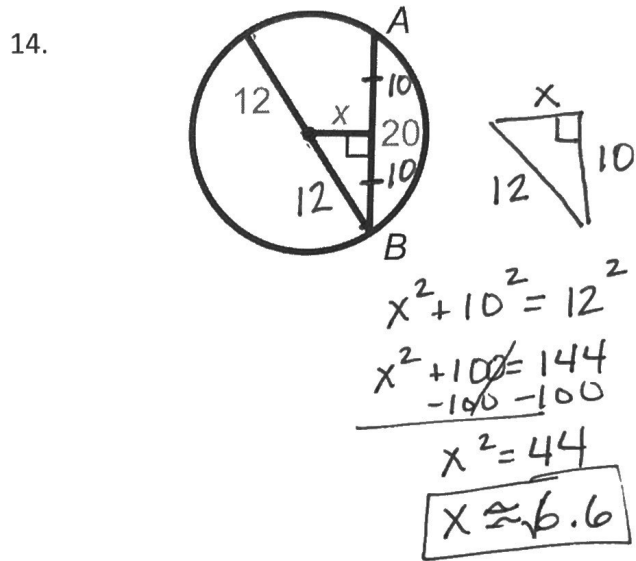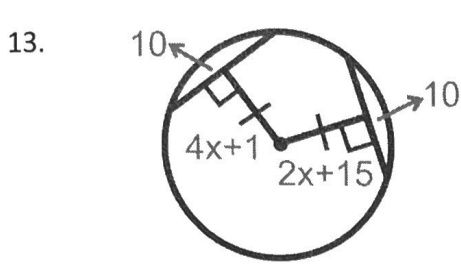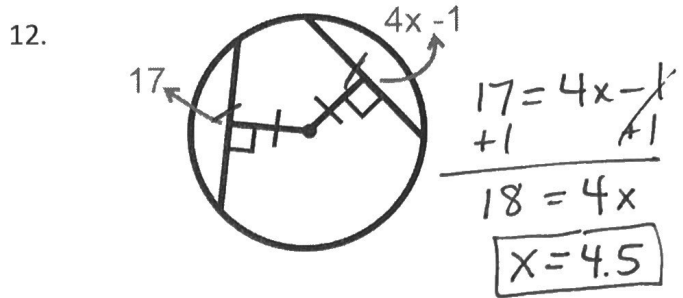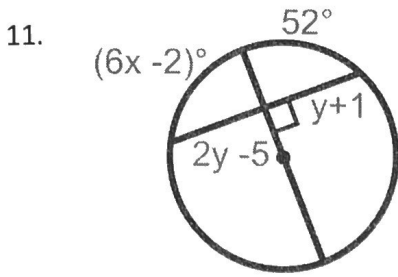
16. Find the measure of $\overset{\frown}{AB}$ in each diagram below.

a.

8
4
A
B

b.

30° 30°
16 16
8
A   8   8   B

H
16 θ A
8
O

$\sin \theta = \dfrac{8}{16} = 30°$

$\boxed{m\overset{\frown}{AB} = 60°}$

In problems 17-19, what can you conclude about the picture? State a theorem that justifies your answer. You may assume that A is the center of the circle.

17.

B
C
F
A
D
E

18.

B
C
D
A
E
F
G
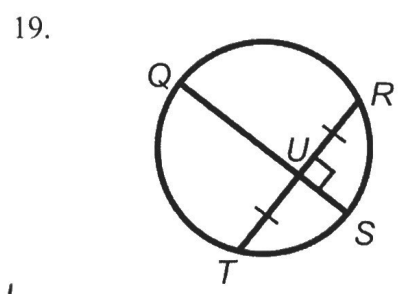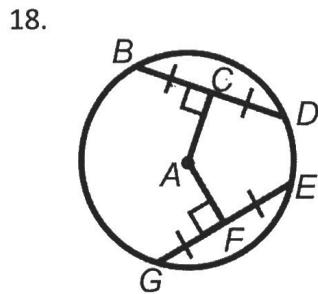
radius is a ⊥ bisector
to a chord.

19.

Q
R
U
S
T

11