

**LESSON 10.6**

**Practice**

For use with pages 688-695

Find the value of  $x$ .

1.  $23x = 23(15)$   
 $x = 15$

2.  $6x = 4(3)$   
 $6x = 12$   
 $x = 2$

3.  $12x = 6(x+4)$   
 $12x = 6x + 24$   
 $6x = 24$   
 $x = 4$

Find  $AB$  and  $DE$ .

4.  $12x = 6(x+5)$   
 $x(x+13) = (x+10)(x+1)$   
 $x^2 + 13x = x^2 + 11x + 10$   
 $2x = 10$   
 $x = 5$

5.  $x(x+10) = (x+1)(x+13)$   
 $x^2 + 10x = x^2 + 14x + 13$   
 $10x = 14x + 13$   
 $-4x = 13$   
 $x = -3.25$   
 $AB = 15 + 6 = 21$   
 $DE = 18 + 5 = 23$

6.  $x(x-6) = (x-10)(x+12)$   
 $x^2 - 6x = x^2 + 2x - 120$   
 $-6x = 2x - 120$   
 $-8x = -120$   
 $x = 15$

Find the value of  $x$ .

7.  $3(x+3) = 2(12)$   
 $3x + 9 = 24$   
 $3x = 15$   
 $x = 5$

8.  $4(x+4) = 5(8)$   
 $4x + 16 = 40$   
 $4x = 24$   
 $x = 6$

9.  $6(10) = 5(x+5)$   
 $60 = 5x + 25$   
 $35 = 5x$   
 $x = 7$

Find  $RT$  and  $TV$ .

10.  $8(x+11) = 10(x+7)$   
 $8x + 88 = 10x + 70$   
 $-2x = -18$   
 $x = 9$   
 $RT = 20$   
 $TV = 14$

11.  $21(2x+29) = 27(x+27)$   
 $42x + 609 = 27x + 729$   
 $15x = 120$   
 $x = 8$   
 $RT = 35$   
 $TV = 45$

12.  $20(x+20) = 5(3x+15)$   
 $20x + 400 = 45x + 225$   
 $-25x = -175$   
 $x = 7$   
 $RT = 36$   
 $TV = 27$

Find the value of  $x$ .

13.  $10^2 = 5(x+5)$   
 $100 = 5x + 25$   
 $75 = 5x$   
 $x = 15$

14.  $x^2 = 9(16)$   
 $x^2 = 144$   
 $x = 12$

15.  $15^2 = 9(4x+9)$   
 $225 = 36x + 81$   
 $36x = 144$   
 $x = 4$

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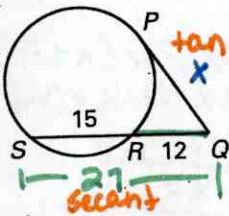
**LESSON 10.6**

**Practice** *continued*

For use with pages 688-695

Find  $PQ$ .

16.

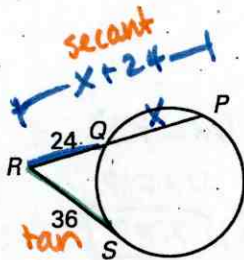


$$x^2 = 12(27)$$

$$x^2 = 324$$

$$\boxed{x = 18}$$

17.



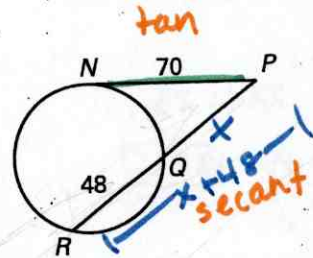
$$36^2 = 24(x+24)$$

$$1296 = 24x + 576$$

$$24x = 720$$

$$\boxed{x = 30}$$

18.



$$70^2 = x(x+48)$$

$$4900 = x^2 + 48x$$

$$x^2 + 48x - 4900 = 0$$

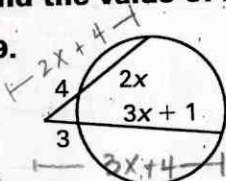
$$(x-50)(x+98) = 0$$

$$\boxed{x = 50}, x = -98$$

*no negative lengths*

Find the value of  $x$ .

19.

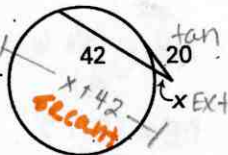


$$4(2x+4) = 3(3x+1)$$

$$8x+16 = 9x+12$$

$$\boxed{x = 4}$$

20.\*



$$20^2 = x(x+42)$$

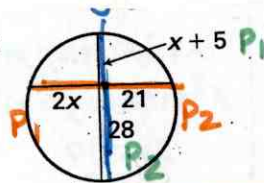
$$400 = x^2 + 42x$$

$$x^2 + 42x - 400 = 0$$

$$(x-8)(x+50) = 0$$

$$\boxed{x = 8}, x = -50$$

21.



$$2x(21) = 28(x+5)$$

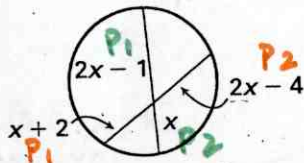
$$42x = 28x + 140$$

$$14x = 140$$

$$\boxed{x = 10}$$

22.

$$\begin{array}{r} 2x-4 \\ \times 2x^2-4x \\ \hline 4x-8 \end{array}$$



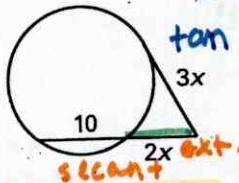
$$(x+2)(2x-4) = x(2x-1)$$

$$2x^2 - 8 = 2x^2 - x$$

$$-8 = -x$$

$$\boxed{x = 8}$$

23.



$$(3x)^2 = 2x(2x+10)$$

$$9x^2 = 4x^2 + 20x$$

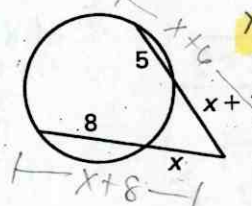
$$5x^2 - 20x = 0$$

$$5x(x-4) = 0$$

$$5x = 0 \quad x = 0$$

$$\boxed{x = 4}$$

24.

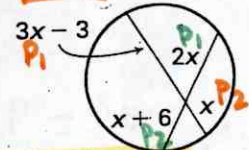


$$x(x+8) = (x+1)(x+6)$$

$$x^2 + 8x = x^2 + 7x + 6$$

$$\boxed{x = 6}$$

25.



$$x(3x-3) = 2x(x+6)$$

$$3x^2 - 3x = 2x^2 + 12x$$

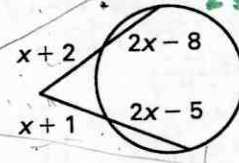
$$x^2 = 15x$$

$$x^2 - 15x = 0$$

$$x(x-15) = 0$$

$$\boxed{x = 15}$$

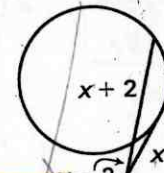
26.



$$(x+2)(3x-6) = (x+1)(3x-4)$$

$$\begin{array}{r} x \cdot 2 \\ 3x^2 - 6x \\ \hline 3x^2 - 4x \\ \hline -6x + 12 \\ \hline -12 = -x - 4 \\ -8 = -x \\ \boxed{x = 8} \end{array}$$

27.



$$x^2 = (x-2)(2x)$$

$$x^2 = 2x^2 - 4x$$

$$x^2 - 4x = 0$$

$$x(x-4) = 0$$

$$\boxed{x = 4}$$