Geometry

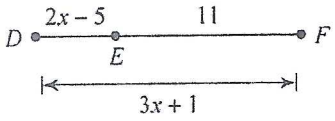
Name _____ ID: 1

Date _____ Period ____

Geometry Final Exam Fall 2021

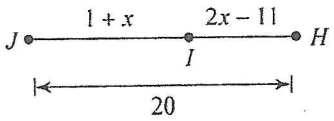
Find the length indicated.

1) Find DE



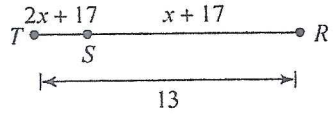
A) 5 B) 4
C) 2 D) 7

2) Find IH



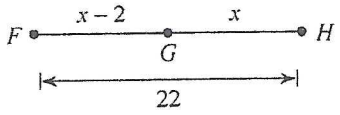
A) 13 B) 9
C) 18 D) 5

3) Find TS



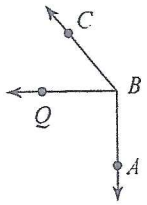
A) 4 B) 3
C) 5 D) 6

4) Find FG



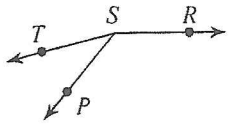
A) 8 B) 7
C) 5 D) 10

5) Find $m\angle QBC$ if $m\angle ABC = 140°$, $m\angle ABQ = 9x - 9$, and $m\angle QBC = 5x - 5$.



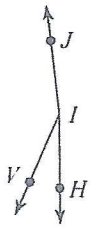
A) 39° B) 30°
C) 34° D) 50°

6) $m\angle PST = 36°$, $m\angle RST = 41x + 2$, and $m\angle RSP = 33x - 2$. Find $m\angle RST$.



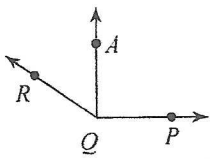
A) 134° B) 102°
C) 109° D) 166°

7) Find $m\angle VIJ$ if $m\angle VIJ = 159 + x$, $m\angle HIV = 33 + x$, and $m\angle HIJ = 174°$.



A) 150° B) 149°
C) 136° D) 99°

8) Find $m\angle RQA$ if $m\angle RQA = x + 62$, $m\angle AQP = x + 97$, and $m\angle RQP = 145°$.

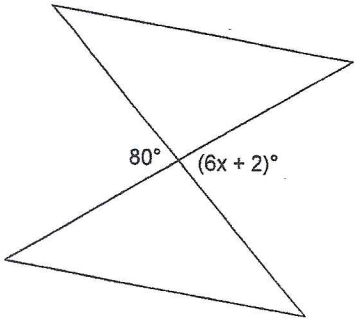


A) 50° B) −2°
C) 55° D) 56°

Find the value of x.

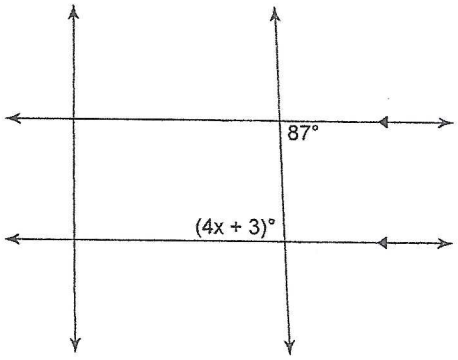
DO NOT WRITE ON THIS!!!

9)



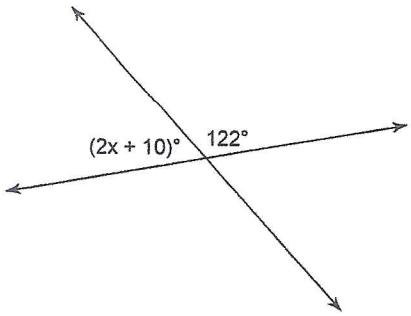
A) 2 B) 3
C) 13 D) 8

10)



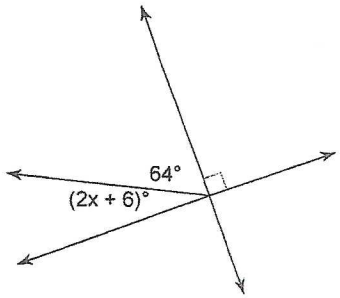
A) 26 B) 24
C) 22 D) 21

11)



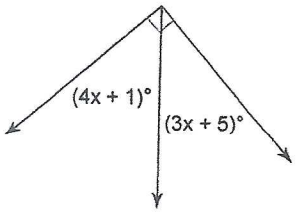
A) 23 B) 24
C) 17 D) 22

12)



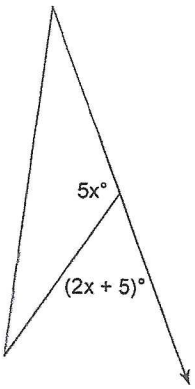
A) 12 B) 15
C) 10 D) 11

13)



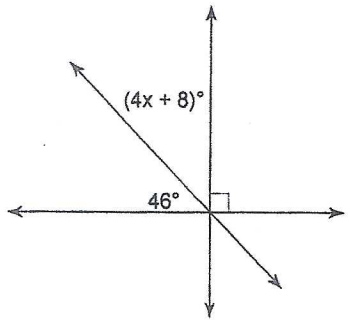
A) 12 B) 11
C) 10 D) 16

14)



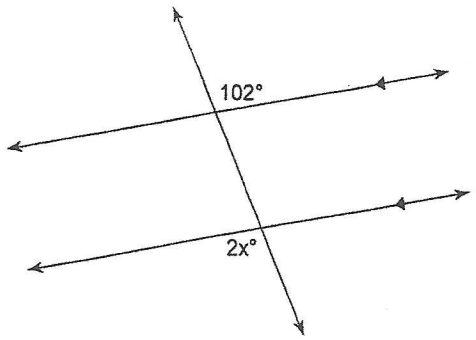
A) 29 B) 27
C) 25 D) 23

15)



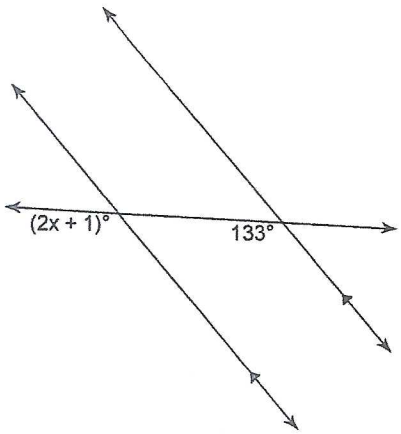
A) 22 B) 16
C) 9 D) 13

16)



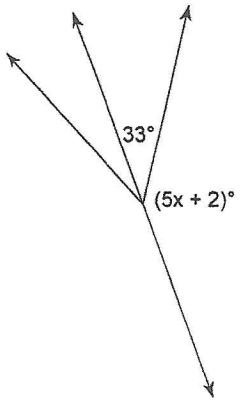
A) 51 B) 48
C) 49 D) 50

17)



A) 64 B) 66
C) 67 D) 70

18)



A) 26 B) 20
C) 29 D) 31

Find the midpoint of the line segment with the given endpoints.

19) $(-5, 5), (6, 9)$

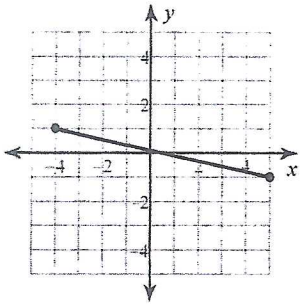
A) $\left(\frac{1}{2}, 7\right)$ B) $\left(-5\frac{1}{2}, -2\right)$
C) $\left(0, 7\frac{1}{2}\right)$ D) $(17, 13)$

20) $(0, 4), (8, 5)$

A) $\left(2, 6\frac{1}{2}\right)$ B) $\left(-4, -\frac{1}{2}\right)$
C) $\left(4, 4\frac{1}{2}\right)$ D) $(16, 6)$

Find the midpoint of each line segment. DO NOT WRITE ON THIS!!!

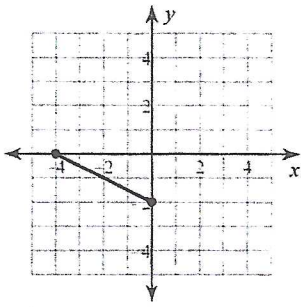
21)



A) $(14, -3)$ B) $\left(-1\frac{1}{2}, 2\right)$

C) $\left(\frac{1}{2}, 0\right)$ D) $\left(-4\frac{1}{2}, 1\right)$

22)



A) $(-2, 1)$ B) $(4, -4)$

C) $\left(-3, 2\frac{1}{2}\right)$ D) $(-2, -1)$

Find the distance between each pair of points. Round your answer to the nearest tenth, if necessary.

23) $(2, 3)$, $(4, 7)$

A) 4.5 B) 2.4

C) 2 D) 12.2

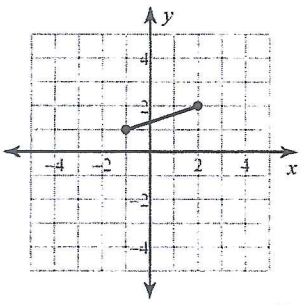
24) $(0, -6)$, $(3, -4)$

A) 2.2 B) 3.6

C) 9.5 D) 10.4

Find the distance between each pair of points.

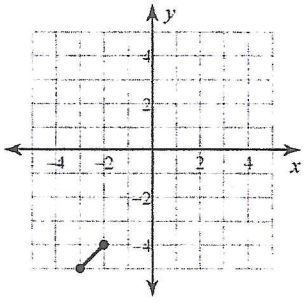
25)



A) 2 B) $2\sqrt{2}$

C) $\sqrt{10}$ D) $\sqrt{2}$

26)



A) $2\sqrt{14}$ B) 2

C) $\sqrt{106}$ D) $\sqrt{2}$

Distance Formula

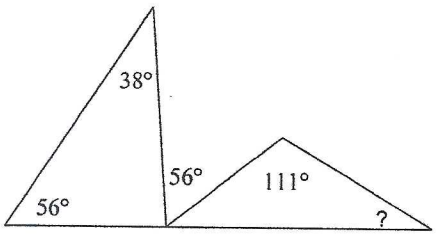
$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Midpoint Formula

$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

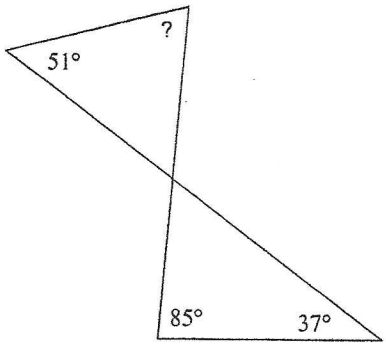
Find the measure of each angle indicated. DO NOT WRITE ON THIS!!!

27)



A) 26° B) 31°
C) 27° D) 85°

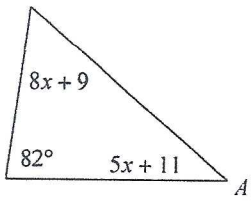
28)



A) 71° B) 63°
C) 122° D) 64°

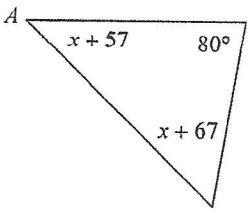
Find the measure of angle A.

29)



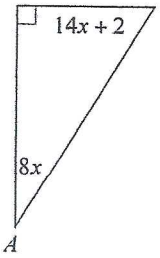
A) 41° B) 30°
C) 151° D) 57°

30)



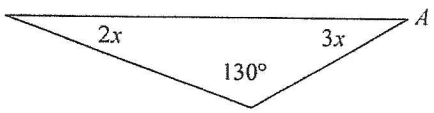
A) 55° B) 50°
C) 33° D) 45°

31)



A) 32° B) 35°
C) 130° D) 58°

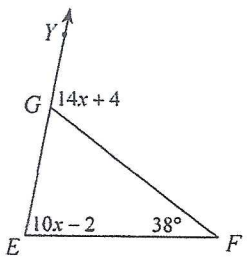
32)



A) 20° B) 55°
C) 30° D) 135°

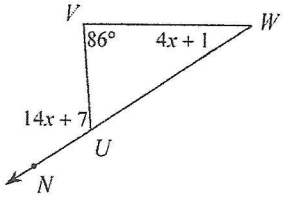
Solve for *x*.

33)



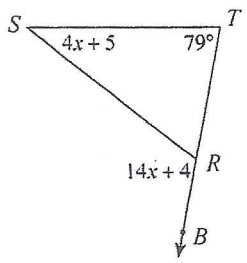
A) 5 B) 2
C) 7 D) 8

34)



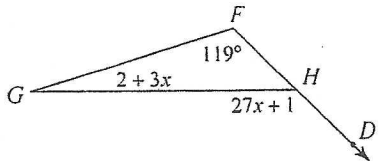
A) 7 B) 8
C) 10 D) 2

35)



A) 11 B) 7
C) 9 D) 8

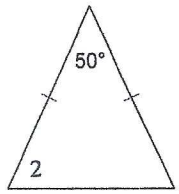
36)



A) 3 B) 5
C) 2 D) 14

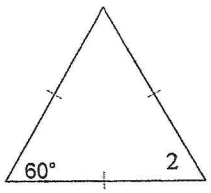
Find the value of *x*.

37) $m\angle 2 = x + 73$



A) 8 B) −8
C) −10 D) 10

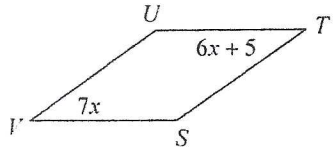
38) $m\angle 2 = 9x - 3$



A) 7 B) −8
C) 10 D) 12

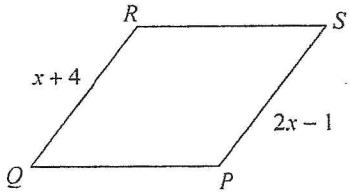
Find the measurement indicated in each parallelogram.

39) Find $m\angle V$



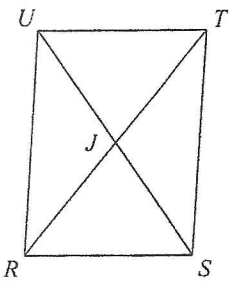
A) 60° B) 65°
C) 35° D) 98°

40) Find QR



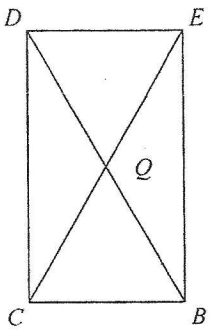
A) 12 B) 14
C) 6 D) 9

41) $TJ = 2x - 11$
$TR = x + 14$
Find TJ



A) 13 B) 20
C) 7 D) 14

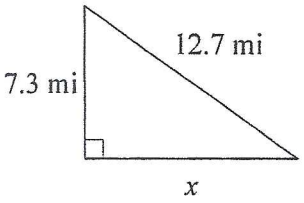
42) $CQ = x + 13$
$CE = x + 26$
Find CE



A) 14 B) 7
C) 26 D) 22

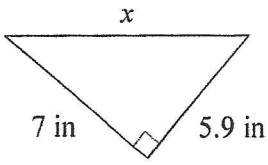
Find the missing side of each triangle. Round your answers to the nearest tenth if necessary.

43)



A) 16.4 mi B) 14.6 mi
C) 10.4 mi D) 7.4 mi

44)



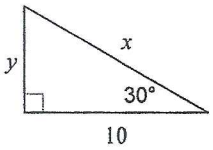
A) 3.8 in B) 11.6 in
C) 10.9 in D) 9.2 in

Pythagorean Theorem:

$a^2+b^2=c^2$

Find the missing side lengths. Leave your answers as radicals in simplest form.

45)



Formulas on last page

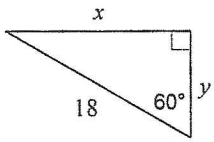
A) $x=\frac{40}{3},\ y=\frac{20\sqrt{3}}{3}$

B) $x=\frac{20\sqrt{3}}{3},\ y=\frac{10\sqrt{3}}{3}$

C) $x=\frac{40}{3},\ y=\frac{10\sqrt{3}}{3}$

D) $x=\frac{20\sqrt{3}}{3},\ y=\frac{20\sqrt{3}}{3}$

46)



Formulas on last page

A) $x=\frac{9\sqrt{6}}{2},\ y=9$

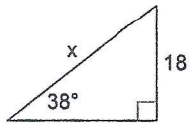
B) $x=\frac{9\sqrt{6}}{2},\ y=\frac{9\sqrt{2}}{2}$

C) $x=9\sqrt{3},\ y=\frac{9\sqrt{2}}{2}$

D) $x=9\sqrt{3},\ y=9$

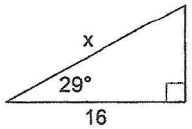
Find the missing side. Round to the nearest tenth.

47)



A) 29.2 B) 11.6
C) 11.1 D) 14.9

48)



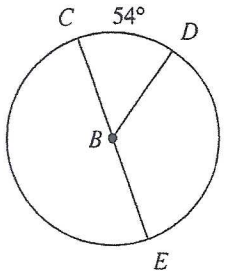
A) 18.3 B) 14.1
C) 14.0 D) 22.9

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

$\cos=\frac{adj}{hyp}$

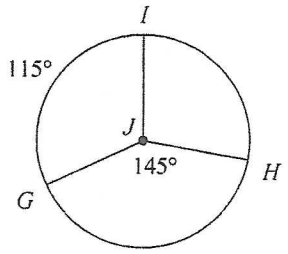
Find the measure of the arc or central angle indicated. Assume that lines which appear to be diameters are actual diameters.

49) $m\angle DBE$



A) 101° B) 100°
C) 126° D) 133°

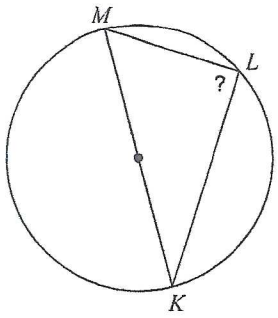
50) $m\angle IJH$



A) 104° B) 141°
C) 98° D) 100°

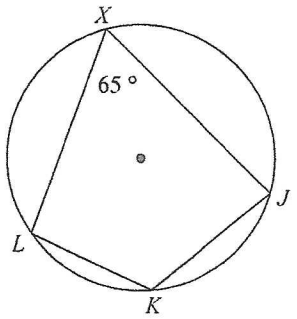
Find the measure of the arc or angle indicated.

51)



A) 110° B) 102°
C) 90° D) 98°

52) Find $m\widehat{JL}$



A) 94° B) 147°
C) 106° D) 130°

Formulas

45) short leg = $\frac{\text{long leg}}{\sqrt{3}}$

46) short leg = $\frac{\text{hypotenuse}}{2}$

hyp = 2(short leg)

long leg = $\sqrt{3}$(short leg)