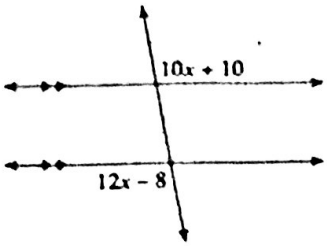
Secondary Math 2 Final Review

Name Key
Date _____ Period _____

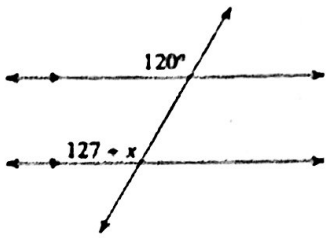
State the relationship, then solve for x.

1)



Congruent
x = 9

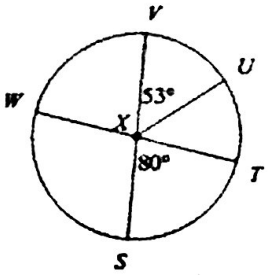
2)



Congruent
x = −7

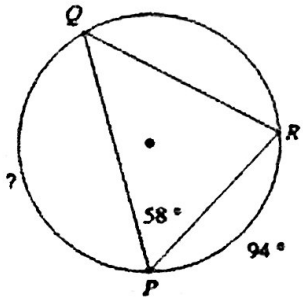
Find the measure of the indicated arc or angle.

3) $m\angle SXW$



100°

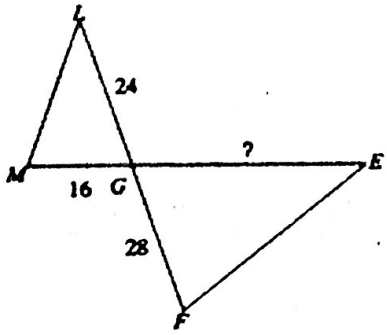
4)



150°

Find the missing length given that the triangles are similar.

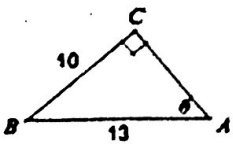
5) $\triangle GFE \sim \triangle GML$



42

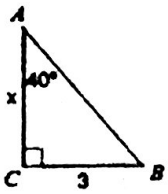
Determine the missing side or angle. Round to the nearest hundredth.

6)



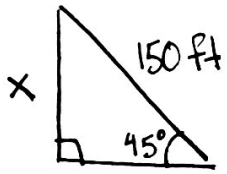
$\theta = 50.28°$

7)



x = 3.58

8) A kite with a string 150ft long makes an angle of 45° with the ground. Draw a picture to represent the situation, then determine the height of the kite in the air.



106.07 ft

Solve the quadratics below. SHOW ALL OF YOUR WORK. Leave as exact answers.

9) $0 = x^2 + 15x + 56$

$x = -7, -8$

10) $3x^2 - 3x = 36$

$x = 4, -3$

11) $x^2 - 20x + 58 = 0$

$x = 10 + \sqrt{21},\ 10 - \sqrt{21}$

12) $3x^2 - 2x = 120$

$x = \frac{20}{3}, -6$

13) $x^2 - 16 = 6x$

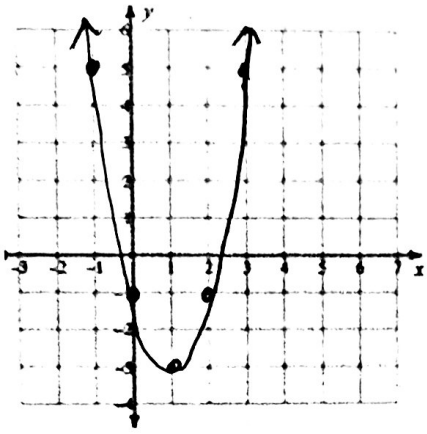
$x = 8, -2$

14) $9x^2 - 9x + 7 = 0$

$x = \frac{3 + i\sqrt{19}}{6}, \frac{3 - i\sqrt{19}}{6}$

Graph the quadratic equations below. Then identify the key features.

15) $y = 2x^2 - 4x - 1$



Vertex: $(1,-3)$

x-int: $(2.225,0), (-0.225,0)$

y-int: $(0,-1)$

Domain: $(-\infty,\infty)$

Range: $[-3,\infty)$

Increasing: $(1,\infty)$

Decreasing: $(-\infty,1)$

Simplify the given expressions. Your answer should contain only positive exponents.

16) $m^{-1}n^{-4} \cdot (-n^3)^{-5}$

$-\frac{1}{mn^{19}}$

17) $(x^{-4}y^4)^0 \cdot x^4y^0$

x^4

Given $f(x) = 5x^2 - 1$, find the average rate of change on the following intervals.

18) $[0,3]$

$\frac{44}{3}$

19) $[-3,1]$

-10

20) Write the equation of a parabola with vertex at (3,-2) through the point (-1, 11)

$y = \frac{13}{16}(x-3)^2 - 2$

21) Write the equation of a parabola with x-intercepts at (-2,0) and (0,0) through the point (3,-12)

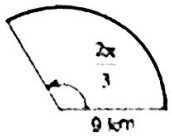
$y = -\frac{4}{5}x(x+2)$

22) Identify if the table below represents a linear, quadratic, or exponential function.

X	0	1	2	3	4
Y	1	6	36	216	1,296

Exponential

23) Find the arc length and sector area of the specified section below. Give both exact and approximate answers.



Arc Length

$\frac{18\pi}{3}$ km

18.85 km

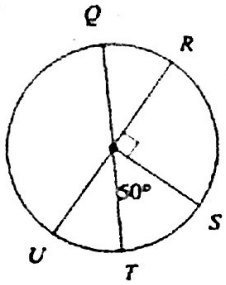
Sector Area

27π km^2

84.82 km^2

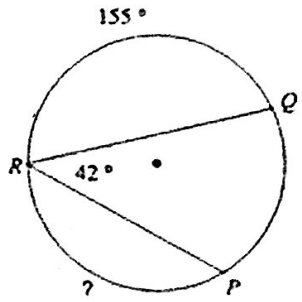
Find the missing angle.

24) $m\widehat{RTQ}$



320°

25)



121°

Solve the following systems.

26) $y = x^2 - 2x - 6$
$y = 4x + 10$

(8, 42)

(-2, 2)

27) $y = x - 2$
$x^2 + y^2 = 36$

(5.123, 3.123)

(-3.123, -5.123)

Use the two-way table to find the specified probabilities. Let I represent playing an instrument and S represent playing a sport.

Middle School Music and Sports Survey

	Plays Team Sport	Does Not Play Team Sport	Total
Plays Instrument	8	3	11
Does Not Play Instrument	2	7	9
Total	10	10	20

28) $P(S \cap I)$ $\frac{2}{5} = 40\%$

29) $P(I^C \cap S)$ $\frac{1}{10} = 10\%$

30) $P(S \cup I)$ $\frac{13}{20} = 65\%$

31) $P(S|I)$ $\frac{8}{11} = 72.7\%$