Algebra 1
Packets 11-18

Mrs Lewis

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Packet 11: wk 82; Use Pythagorean Theorem to solve

Packet 12 : Quadratic Formula: Complete Wk 39 Solving Quadratics by Quadratic Formula

Packet 13: Complete Wk 221: Solve each equation by using quadratic formula

Packet 14: Complete worksheet J53 Solve by quadratic formula

Packet 15:Complete WK 222. Solve by Quadratic Formula

Packet16: Complete Word search

Packet 17: Circumference worksheet

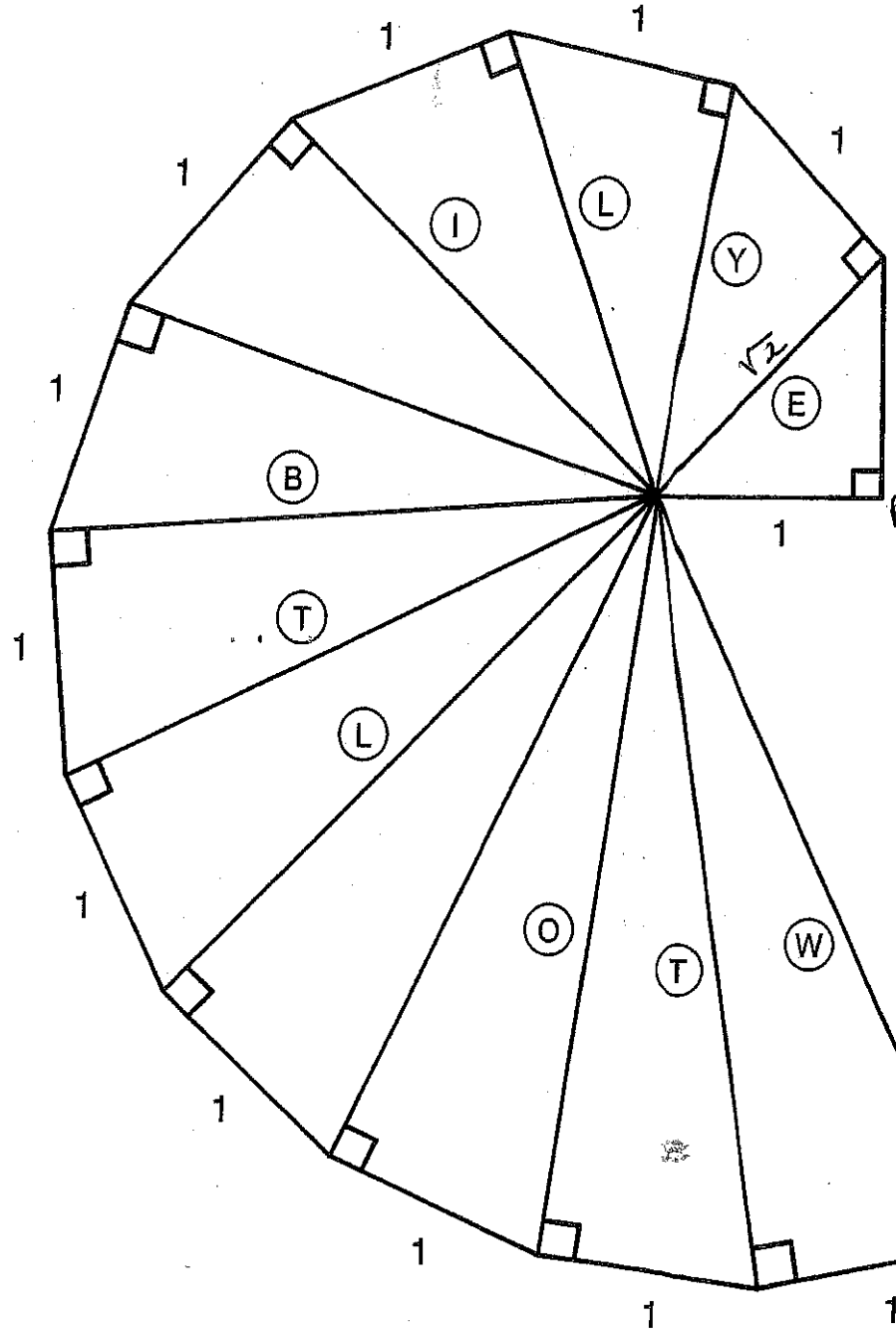
Packet 18: Area Worksheet

If you can not print at home, listen for the day you can pick these up at school. Call ahead so they will have them ready for you if possible.

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

How Did The Kid Play Trumpet?

Use the Pythagorean Theorem to find the length of each side labeled with a circled letter. Write the letter in the box or boxes at the bottom of the page that contain the same answer.



↖ START HERE

$1^2+1^2=E^2$

$1+1=E^2$

$2=E^2$

$\sqrt{2}=E$

Then

$1^2+\sqrt{2}^2=y^2$

3	$\sqrt{5}$	$2\sqrt{3}$	$2\sqrt{2}$	2	$\sqrt{2}$	$\sqrt{7}$	$\sqrt{11}$	$\sqrt{3}$	$\sqrt{7}$	3	$\sqrt{2}$	$\sqrt{13}$

Objective: To apply the Pythagorean Theorem to state irrational lengths

Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$$

you equation must be in the form and = to 0.

$x^2 + x + 1 = 0$ and = to 0

↑ your squares ↑ your x ↑ the number

$(3)x^2+(2)x-(4)=0$ Then you can assign a, b and c

(a) (b) (c)

$$\frac{-2 \pm \sqrt{2^2-4(3)(-4)}}{2(3)} = \frac{-2 \pm \sqrt{4+48}}{6}$$

$$= \frac{-2 \pm \sqrt{52}}{6} = \frac{-2 \pm 2\sqrt{13}}{6}$$ You can reduce if all 3 Reduce

$$= \frac{-1 \pm i\sqrt{13}}{3}$$

If it is not in that form you must rewrite it before you start.

$3x^2 = 2x - 4$

$-2x \quad -2x$

$3x^2 - 2x = -4$

$+4 \quad +4$

$(3)x^2-(2)x+(4)=0$

(a) (b) (c)

Name _____

Solving Quadratics by Quadratic Formula

Quick Review

If the equation you are solving is not easily factorable, you can always use the quadratic formula.

Given $ax^2 + bx + c = 0$,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

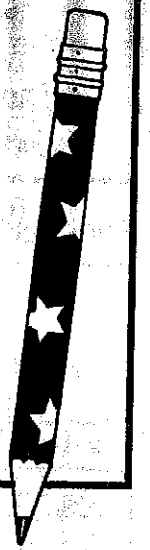
$2x^2 - x - 3 = 0$

$$x = \frac{1 \pm \sqrt{(-1)^2 - 4(2)(-3)}}{2(2)}$$

$$x = \frac{1 \pm \sqrt{25}}{4} = \frac{1 \pm 5}{4}$$

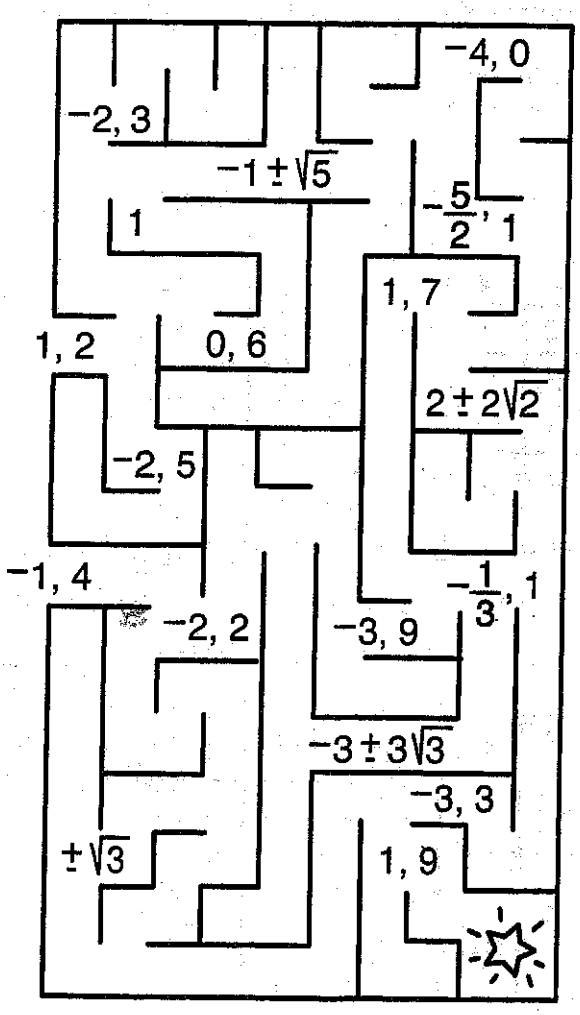
$$x = \frac{1+5}{4} = \frac{6}{4} = \boxed{\frac{3}{2}}$$

and $$x = \frac{1-5}{4} = \frac{-4}{4} = \boxed{-1}$$



Use the quadratic formula to solve these equations. Then follow your answers in order through the maze.

1. $x^2 - 3x + 2 = 0$ x = _____, _____
2. $x^2 - 6x = 0$ x = _____, _____
3. $8x^2 - 16x + 8 = 0$ x = _____
4. $3x^2 + 6x - 12 = 0$ x = _____
5. $2x^2 + 3x - 5 = 0$ x = _____, _____
6. $x^2 - 4x - 4 = 0$ x = _____
7. $3x^2 - 2x - 1 = 0$ x = _____, _____
8. $x^2 + 6x - 18 = 0$ x = _____
9. $2x^2 - 8 = 0$ x = _____, _____
10. $x^2 - 10x + 9 = 0$ x = _____, _____



What Is a Metaphor?

Solve each equation below using the quadratic formula. Cross out the box that contains the solution set. When you finish, print the letters from the remaining boxes in the spaces at the bottom of the page.

(1) $x^2 + 4x + 3 = 0$

(2) $x^2 - 7x + 10 = 0$

(3) $x^2 + 5x + 6 = 0$

(4) $x^2 - 3x - 4 = 0$

(5) $y^2 + 2y - 8 = 0$

(6) $x^2 - 5x + 2 = 0$

(7) $d^2 + 3d - 7 = 0$

(8) $2x^2 - 5x + 2 = 0$

(9) $2n^2 - 3n - 5 = 0$

(10) $3x^2 + 5x + 1 = 0$

(11) $3y^2 - 2y - 8 = 0$

ONE $\{5, 2\}$	ATH $\left\{\frac{-5 \pm \sqrt{13}}{6}\right\}$	TOK $\left\{-4, \frac{1}{2}\right\}$	ING $\left\{\frac{5}{2}, -1\right\}$	ICK $\left\{\frac{-3 \pm \sqrt{37}}{2}\right\}$
ASL $\{-2, -3\}$	EEP $\left\{\frac{3 \pm \sqrt{15}}{2}\right\}$	MET $\{2, -4\}$	BOW $\left\{2, -\frac{4}{3}\right\}$	COW $\left\{\frac{2 \pm \sqrt{30}}{6}\right\}$
BOY $\left\{2, \frac{1}{2}\right\}$	RIT $\{-1, -3\}$	SIN $\{6, 1\}$	GLE $\left\{\frac{5 \pm \sqrt{17}}{2}\right\}$	ING $\{4, -1\}$

"What do you call a funny book about eggs?"

Solve for x. The answer to each problem will match a letter that will allow you to figure out the joke.

1. $x^2 + 3x - 7 = 0$

2. $x^2 - 11x + 2 = 0$

3. $3x^2 - 6x - 1 = 0$

4. $-5x^2 + 4x + 2 = 0$

5. $2x^2 + x + 9 = 0$

6. $-2x^2 + 8x = 5$

7. $4x^2 = 7x - 2$

8. $6x^2 - 13 = 8x$

L. $\frac{-3 \pm \sqrt{37}}{2}$

B. $\frac{7 \pm \sqrt{17}}{8}$

O. $\frac{3 \pm 2\sqrt{3}}{3}$

K. $\frac{4 \pm \sqrt{6}}{2}$

Y. $\frac{4 \pm \sqrt{94}}{6}$

E. $\frac{-3 \pm \sqrt{19}}{2}$

K. $\frac{2 \pm \sqrt{14}}{5}$

A. $\frac{11 \pm \sqrt{113}}{2}$

S. $\frac{-11 \pm \sqrt{91}}{2}$

O. No real solution

R. $\frac{3 \pm 4\sqrt{2}}{3}$

2	8	5	1	6	7	5	3	4

What Do You Call It When Somebody Spends 20 Years in the 24th Row of a Theater?

Solve each equation below using the quadratic formula. Find the solution set at the bottom of the page and print the letter of the exercise above it.

(I) $2x^2 - 7x + 5 = 0$

(N) $2x^2 + x - 6 = 0$

(S) $3n^2 - 2n - 5 = 0$

(A) $w^2 + 7w + 4 = 0$

(I) $5x^2 + 3x - 3 = 0$

(G) $6x^2 - x = 2$

(E) $2y^2 + 2 = 9y$

(I) $x^2 - 6x + 4 = 0$

(L) $t^2 + 4t - 2 = 0$

(N) $3x^2 + 10x + 5 = 0$

(V) $4x^2 - 3x = 1$

(L) $2d^2 + 4 = 5d$

(X) $2x = 7 - x^2$

(I) $y^2 + 9 = -9y$

$\{-2 \pm \sqrt{6}\}$	$\left\{\frac{-3 \pm \sqrt{69}}{10}\right\}$	$\left\{1, -\frac{1}{4}\right\}$	$\{3 \pm \sqrt{5}\}$	$\left\{\frac{3}{2}, -2\right\}$	$\left\{\frac{2}{3}, -\frac{1}{2}\right\}$	$\{-1 \pm 3\sqrt{5}\}$	$\left\{\frac{5}{2}, 1\right\}$	$\left\{\frac{-5 \pm \sqrt{10}}{3}\right\}$	$\left\{\frac{-9 \pm \sqrt{30}}{2}\right\}$	$\{-1 \pm 2\sqrt{2}\}$	$\left\{2, -\frac{3}{2}\right\}$	$\left\{\frac{-7 \pm \sqrt{33}}{2}\right\}$	$\left\{\frac{-9 \pm 3\sqrt{5}}{2}\right\}$	$\left\{\frac{5}{3}, -1\right\}$	no solution	$\left\{\frac{9 \pm \sqrt{65}}{4}\right\}$

OBJECTIVE 4–e: To solve quadratic equations using the quadratic formula (more challenging exercises).

Word Search

As you find the words in the list below, shade in the squares containing the letters. When finished, the remaining letters (read horizontally from top to bottom) will explain what is so special about the number 1991 and the phrase, "some men interpret nine memos."

C	O	N	C	E	N	T	R	I	C	A
I	N	S	C	R	I	B	E	D	P	E
R	A	L	S	E	C	A	N	T	T	L
C	I	N	D	T	R	R	O	M	A	G
U	E	I	S	N	A	C	N	U	N	N
M	M	B	E	E	R	O	R	W	G	A
S	E	M	I	C	I	R	C	L	E	L
C	O	S	R	D	T	H	A	T	N	A
R	I	S	U	T	H	D	E	S	T	R
I	A	M	E	I	F	O	R	R	W	T
B	A	R	D	S	D	A	N	O	D	N
E	B	A	C	K	W	A	A	R	H	E
D	I	A	M	E	T	E	R	D	S	C

Word List:

RADIUS
DIAMETER
CHORD
ARC
SEMICIRCLE
CENTRAL ANGLE
CENTER
SECANT
CONCENTRIC
INSCRIBED
CIRCUMSCRIBED
TANGENT

____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____

____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____

____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____

____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____

____ ____ ____ ____ ____ ____ ____ ____ ____ .

Circumference

Circumference is the distance around a circle. Think of circumference as the circle's perimeter. Find circumference using the formula.

Circumference = π (diameter) OR $C = \pi d$

Remember: The diameter is twice the length of a radius.

Find the circumference for the circle. Leave your answers in terms of π. Match your answers in the decoder to answer the riddle.

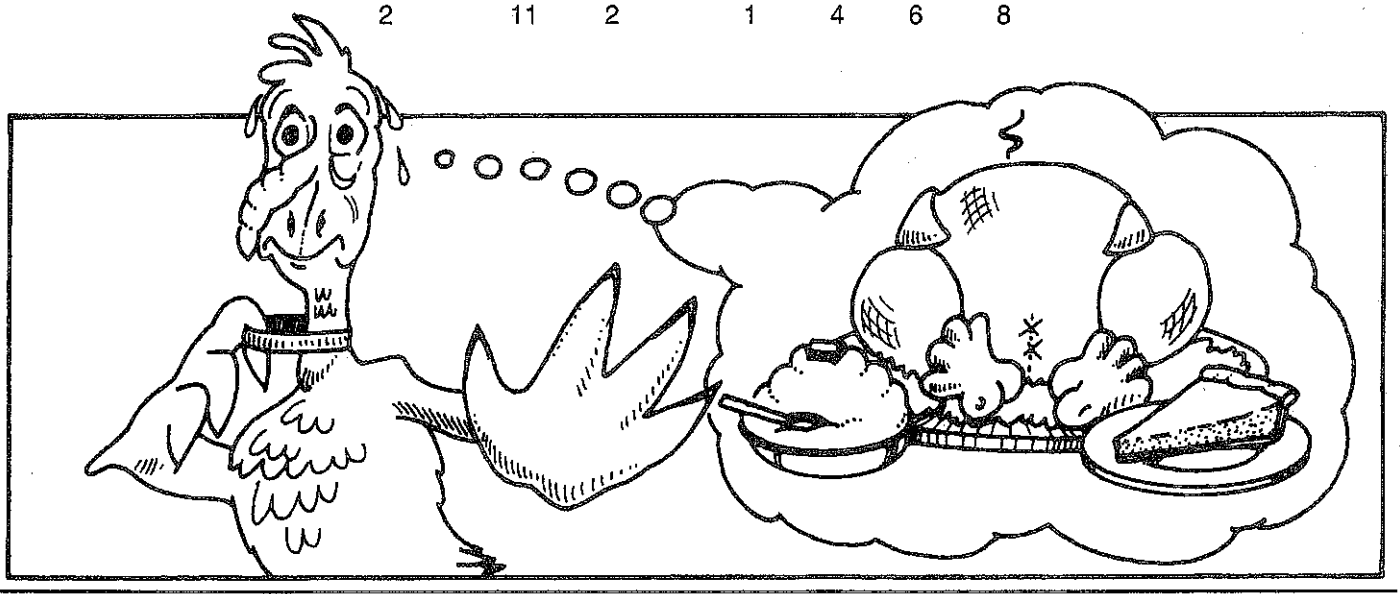
1. radius = 4 cm $C = 2(4)\pi = 8\pi$
2. diameter = 18 m $C = \pi 18$
3. diameter = 10 cm
4. radius = 3 cm
5. radius = 11 ft
6. diameter = 4 m
7. radius = 10 ft
8. diameter = 11 m
9. diameter = 3 in
10. radius = 18 m
11. radius = 9 ft

18π m	4π m	11π m	3π in	10π cm	18π ft	8π cm	20π ft	6π cm	36π m	22π ft
A	D	E	I	K	L	M	N	O	P	U

What do mathematicians like to eat on Thanksgiving?

10	5	1	10	3	9	7		10	9

2	11	2		1	4	6	8



Area of a Circle

The area of a circle is found by using the formula

Area = π (radius)^2 **OR** $A = \pi r^2$

Remember: Use square units when finding area.

Find the area of the circles described. Shade your answers below to reveal the name of the mathematician who invented the roulette wheel.

$A = \pi 4^2$
$A = 16\pi$

1. radius = 4 cm

$A = \pi 9^2$
$A = 81\pi$

2. diameter = 18 cm

To get radius divide by 2

3. diameter = 10 m
4. radius = 7 in
5. radius = 3 m
6. diameter = 12 ft
7. radius = 12 in
8. diameter = 30m
9. diameter = 22 cm
10. radius = 8 m
11. diameter = 4 cm
12. radius = 10 cm
13. radius =13 cm
14. diameter = 28 in
15. diameter = 40 cm
16. radius = 3 ft
17. diameter = 32 in
18. radius = 9 ft
19. radius = 18 cm
20. diameter = 34 m