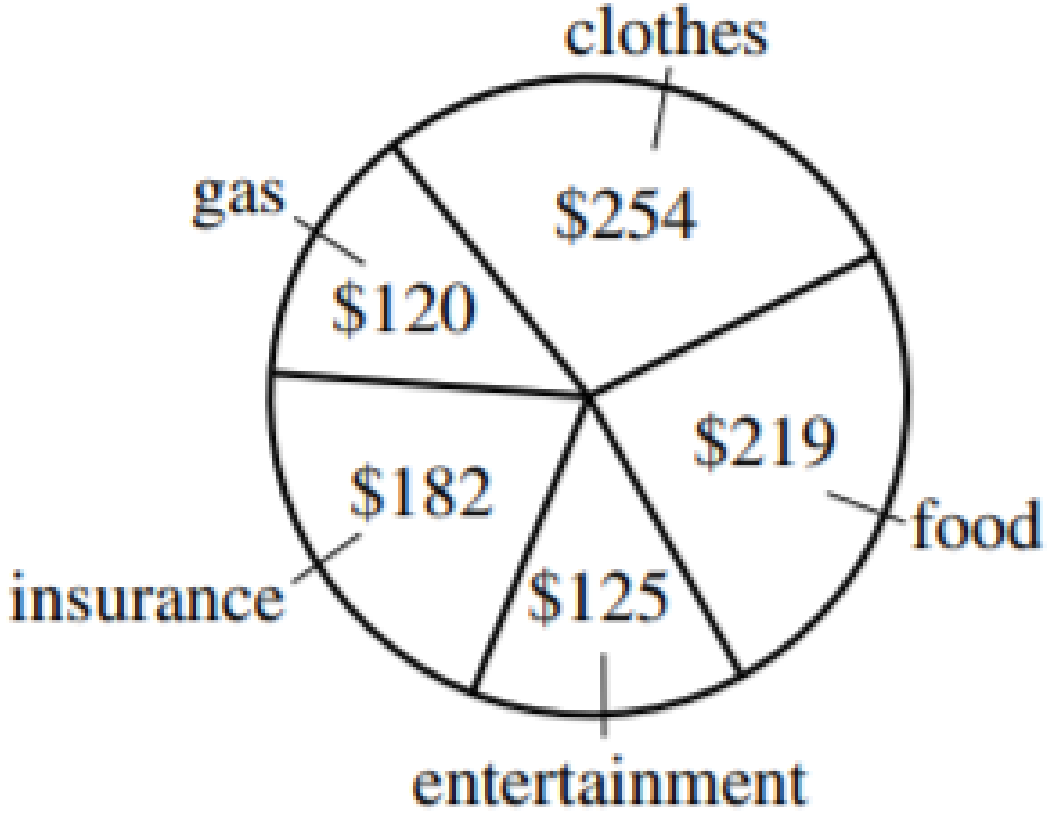
ALGEBRA 4

Day 61

Bell Work

Last month, Lucie had total expenditures of $900. The pie chart below breaks down these expenditures by category. The category in which Lucie's expenditures were greatest is what percent of her total expenditures, to the nearest 1% ?



A. 24%
B. 28%
C. 32%
D. 34%
E. 39%

ACT DAY 1

- Basic understanding of the ACT.
- How do they score the ACT?
- John Baylor Math Formulas and Tips
- Formula Sheet (before spring break… extra)
- Mini Test 1

ACT ASSESSMENT

This test is used by colleges to predict students' success in college courses.

What types of questions are on the ACT?

- Based on subjects studied in high school
- Emphasizes thinking skills
- Does not ask you to recall facts or memorize information
- Questions require students to solve problems, draw conclusions, make inferences, think analytically

How long does the test take?

- The test takes 2 hours and 55 minutes to complete
- It consists of 215 multiple-choice questions in 4 areas:
  - *English*
  - *Math*
  - *Reading*
  - *Science reasoning*
  - *OPTIONAL: 30-minute writing test*

What is the highest possible score?

36

You will receive a score for each section of the test and those will be averaged together.

Is it okay to guess?

- Your score on the test will be based on the number of questions that you answer correctly
- THERE IS NO PENALTY FOR GUESSING!
- Answer every question, even if you have to guess

May I use a calculator on the math portion of the test?

- Is it okay for me to assume you want the graphing calculator that we use in class?

- Otherwise they'll give you the normal one

How many questions are on the English test?

TOTAL OF 75 questions,
45 minutes

Usage and Mechanics
(40 questions)

- *Punctuation 10*
- *Grammar 12*
- *Sentence Structure 18*

Rhetorical Skills
(35 questions)

- *Writing Strategy 12*
- *Organization 11*
- *Style 12*

How many questions are on the math test?

TOTAL OF 60 questions,
60 minutes

Pre-algebra 14

Elementary algebra 10

Intermediate algebra 9

Coordinate geometry 9

Plane geometry 14

Trigonometry 4

How many questions are on the reading test?

TOTAL OF 40 questions, 40 minutes

Prose fiction: novels, short stories 10

Social studies 10

Humanities 10

Natural Science 10

How many questions are on the science reasoning test?

TOTAL OF 40 questions, 35 minutes

Data representation (graphs, tables): 15

Research summaries (experiments): 18

Conflicting viewpoints (inconsistent hypotheses): 7

ACT Raw Scores

Scale Score	Raw Scores				Scale Score
	Test 1 English	Test 2 Mathematics	Test 3 Reading	Test 4 Science	
36	75	60	40	40	36
35	74	58-59	39	39	35
34	73	57	38	-	34
33	72	56	37	38	33
32	71	55	36	-	32
31	70	54	35	37	31
30	69	52-53	34	36	30
29	68	51	33	35	29
28	66-67	49-50	32	34	28
27	65	46-48	31	32-33	27
26	63-64	44-45	30	31	26
25	61-62	41-43	28-29	29-30	25
24	58-60	38-40	27	27-28	24
23	56-57	35-37	26	25-26	23
22	53-55	33-34	24-25	23-24	22
21	49-52	32	23	21-22	21
20	46-48	30-31	21-22	19-20	20
19	44-45	28-29	20	18	19

23	56-57	35-37	26	25-26	23
22	53-55	33-34	24-25	23-24	22
21	49-52	32	23	21-22	21
20	46-48	30-31	21-22	19-20	20
19	44-45	28-29	20	18	19
18	42-43	25-27	19	16-17	18
17	40-41	22-24	17-18	15	17
16	37-39	17-21	16	14	16
15	34-36	13-16	15	12-13	15
14	31-33	10-12	13-14	11	14
13	30	8-9	12	10	13
12	28-29	6-7	10-11	9	12
11	25-27	5	9	8	11
10	23-24	4	7-8	7	10
9	20-22	-	6	5-6	9
8	17-19	3	5	4	8
7	14-16	-	-	-	7
6	11-13	2	4	3	6
5	9-10	-	3	2	5
4	7-8	1	2	-	4
3	5-6	-	-	1	3
2	3-4	-	1	-	2
1	0-2	0	0	0	1

Read the Directions before the Test Day

MATHEMATICS TEST

60 Minutes—60 Questions

DIRECTIONS: Solve each problem, choose the correct answer, and then fill in the corresponding oval on your answer document.

Do not linger over problems that take too much time. Solve as many as you can; then return to the others in the time you have left for this test.

You are permitted to use a calculator on this test. You may use your calculator for any problems you choose, but some of the problems may best be done without using a calculator.

Note: Unless otherwise stated, all of the following should be assumed.

1. Illustrative figures are NOT necessarily drawn to scale.
2. Geometric figures lie in a plane.
3. The word *line* indicates a straight line.
4. The word *average* indicates arithmetic mean.

Never score below 20 again...

English

You should be above 20. Just master your Grammar Rules, and practice with English passages. How?

Hammer: 1 passage - 9 minutes - review - repeat.

Math

Don't worry about the last ten questions. Just get 2/3rds of the first 50 right, and single-bubble the final ten questions. How?

Hammer: 3 questions - 3 minutes - review - repeat.

Relax and focus - only 50 questions in 60 minutes!

Reading

Don't worry about the last passage. Just get 70% of the first 30 questions right, and single-bubble the final ten. How?

Hammer: 1 passage - 8:45 - review - repeat.

Relax and focus - only 3 passages in 35 minutes!

Science

Don't worry about the last passage. Just get 70% of the questions in the first 6 passages correct, and single-bubble the final passage. How?

Hammer: 1 passage - 5 minutes - review - repeat.

Relax and focus - only 6 passages in 35 minutes!

PUDWYK: PUt Down What You Know

Show your work - formulas first

Then:

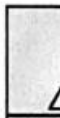
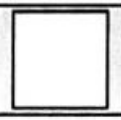
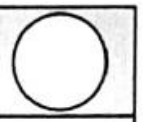
- **QUICK-CHECK:** rework each question quickly in your head or with your calculator — make sure it's right!

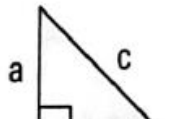
The JBTP Math Strategy:

1. **PUDWYK.**
2. **Work clearly** (sloppiness = points).
3. **Quick-Check™** in your head (or with your calculator). Circle & bubble.
4. **Get to all 60!**

Remember:

- **Focus first on the initial 20 questions;** if you miss many you are probably confusing a fundamental geometry formula or algebra technique.
- **Get the first 10 right.**
- A powerful form of PUDWYK: ***GOOVGIN***.

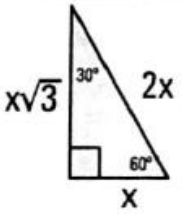
			
Area	$\frac{1}{2}bh$	bh	πr^2
Perimeter/ Circumference	add sides	add sides	$2\pi r$
Degrees	180	360	360

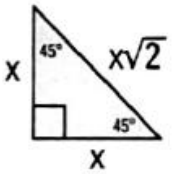


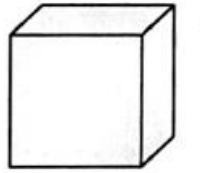
$a^2 + b^2 = c^2$

Perfect right triangles

3-4-5	5-12-13	7-24-25	8-15-17







Volume

$V = lwh$

Exponents

$8^2 \bullet 8^4 = 8^6$

$\frac{3}{7^{-4}} = \frac{3(7^4)}{1}$

$(8^4)^3 = 8^{12}$

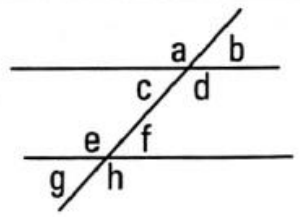
$\frac{8^2}{8^5} = 8^{-3} = \frac{1}{8^3}$

$8^0 = 1$

$\sqrt[4]{3^5} = 3^{5/4}$

Probability $= \frac{\text{\# of winners}}{\text{total}}$

$4! = 4 \cdot 3 \cdot 2 \cdot 1$



$a + b = 180$

$f + h = 180$

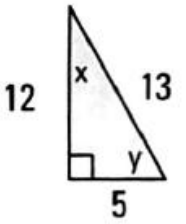
$a = d = e = h$

SOH CAH TOA

$\sin x = \frac{\text{opp}}{\text{hyp}} = \frac{5}{13}$

$\tan x = \frac{\sin x}{\cos x} = \frac{\text{opp}}{\text{adj}} = \frac{5}{12}$

$\cos x = \frac{\text{adj}}{\text{hyp}} = \frac{12}{13}$



$\frac{2}{3} + \frac{2}{3} = \frac{4}{3}$ $\quad \frac{4}{3} \cdot \frac{2}{9} = \frac{8}{27}$

$\frac{8}{5} - \frac{1}{2} =$ $\quad \frac{\frac{3}{2}}{\frac{5}{}} = \frac{3}{1} \cdot \frac{5}{2} = \frac{15}{2}$

$\frac{16}{10} - \frac{5}{10} = \frac{11}{10}$

$|-3| = 3$

$y = mx + b$ **Lines**

$m = \text{slope} = \frac{\text{rise}}{\text{run}} = \frac{\triangle y}{\triangle x}$

b = y intercept

$\perp$ slope = -reciprocal

Distance Formula
make the distance a hypotenuse & use
$a^2 + b^2 = c^2$

Foil
$(x + 1)(x - 2) = 0$
$x^2 - 2x + 1x - 2 = 0$
$x^2 - x - 2 = 0$

Reverse Foil
$x^2 - 7x + 10 = 0$
$(x - 5)(x - 2) = 0$
$x = 5 \quad x = 2$

Midpoint Formula
$\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}$

$(x+2)^2 = (x+2)(x+2)$
$= x^2+4x+4$

Distance = (rate)(time)

Regular shaped object
# of degrees =
(# of angles - 2) • 180

Median = middle value

Mode = most recurring value

Mean = $\frac{\text{sum}}{\text{total \#}}$ = average

1, 2, 2, 5, 7, 9, 100

Median = Mode = Mean =

Circle Formula

center = x_1, y_1

$(x-x_1)^2 + (y-y_1)^2 = r^2$

Mini Test 1