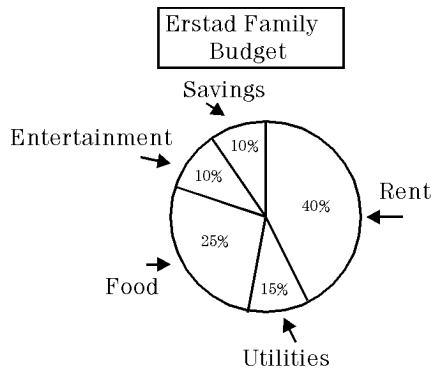


Use pencil to complete this assignment. Show work for all of your answers.

1. Ariel is allowed to throw out her lowest score. Missing scores count as zero points. What is Ariel's average after she throws out her lowest score?
2. Harold's lab grades in science are 93, 84, 77, and 90. What is the mean (average) of Harold's grades?

Ariel's Scores	
Assignment	Score
1	20
2	17
3	10
4	13
5	missing
6	14
7	16

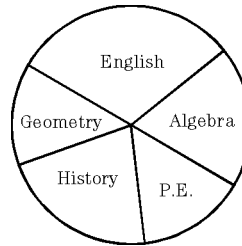
3. Pete has a 0.320 batting average. What is the probability of his getting a hit in his next at-bat?
4. A box contains 1 green card, 3 blue cards, and 4 red cards. What is the probability of *not* drawing a blue card?
5. The Erstad family budget is based on an income of \$4,000 per month. How much money did they spend on entertainment if they only spent  $\frac{1}{2}$  of the budgeted amount?
6. If a single bacteria was put in a dish to grow, and it reproduced at the rate shown, how many bacteria will there be in the dish after one hour.



Time Elapsed	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.
Number of Germs	3	5	8	13	21

7. Greg wants to put a border around all four walls in each of the bedrooms of his three bedroom house. If each room is about the same size, how could he estimate the amount of border he needs to purchase?

8. Given the circle graph of favorite subjects for 500 students, what is a reasonable estimate for the probability that a student will prefer Algebra?



9. Out of a bag containing marbles of three different colors, 40 are drawn. The frequency of different colors drawn is shown in the table.

Based on this table what would be the probability of drawing a red marble?

Color	Frequency
Black	20
Red	15
White	5

10. One hundred people who attended a recent concert were classified by age bracket (see the chart). If 2,500 people attended the concert, what would be a good prediction for the number of attendees between 13 and 15 years old?

Age of Concert Attendees	
Age	Number
under 12	15
13-15	32
16-18	45
over 18	8

**Answer List**

- |   |                  |
|---|------------------|
| 1. 15   | 2. 86            |
| 3. 32%  | 4. $\frac{5}{8}$ |
| 5. \$200  | 6. 2             |
| 7. by finding the perimeter of one room and multiplying it by 3 | 8. $\frac{1}{5}$ |
| 9. $\frac{3}{8}$  | 10. 800          |

**Catalog List**

- |              |              |
|--------------|--------------|
| 1. CA1 AH 51 | 2. CA1 AH 1  |
| 3. CA1 AJ 40 | 4. CA1 AJ 66 |
| 5. CA1 AL 54 | 6. CA1 AL 50 |
| 7. CA1 AL 26 | 8. CA1 AJ 77 |
| 9. CA1 AJ 69 | 10. CA1 AI 7 |

# October, 2002

**Monday**

**Tuesday**

**Wednesday**

**Thursday**

**Friday**

	1	2	3	4
	Factor: $x^2 + x - 20$	Factor: $x^2 - 8x - 20$	Factor: $x^2 - x - 20$	Factor: $x^2 + 8x - 20$
7	8	9	10	11
Find one of the factors of: $4x^2 - 12x + 9$	Find one of the factors of: $x^2 - 12x + 36$	Factor completely: $-x^2 + 5x - 6$	Factor completely: $-x^2 + 4x + 12$	What is the greatest common factor of $24x^4y^3z^2$ and $36x^2y^4$ ?
14	15	16	17	18
Find the greatest common factor of $12x^6y^3$ and $3x^7y^4$ .	Factor completely: $2x^3 - 8x$	Factor completely: $3x^3 - 27x$	Factor completely: $30d^3 - 24d^2 + 60d$	Factor completely: $12x^3 + 8x^2 + 4x$
21	22	23	24	25
Solve for $k$ : $\frac{k^2 - 16}{k - 4} = 0$	Solve for $y$ : $\frac{y^2 - 25}{y + 5} = 0$	What are the solutions of the equation $(x + 4)(x - 15) = 0$ ?	Solve by factoring: $2x^2 + 5x - 3 = 0$	Solve by factoring: $3x^2 - x - 2 = 0$
28	29	30	31	
Solve for $x$ : $\frac{x^2 - 9}{x - 3} = 0$	Solve for $y$ : $\frac{y^2 - 49}{y + 7} = 0$	Solve for $k$ : $\frac{k^2 - 16}{k - 4} = 0$	Solve for $y$ : $\frac{y^2 - 25}{y + 5} = 0$	

## 7th Grade Math

## Unit Exam

Name \_\_\_\_\_

Date \_\_\_\_\_

You will have 45 minutes to complete this exam. You may NOT use calculators, or notes. There is to be no talking during the exam.

\_\_\_\_\_ 1. The ratio of chocolate syrup to milk in hot cocoa is 2 : 3. If there are 36 cups of cocoa, how much chocolate syrup is needed?

- a) 7.2 cups      b) 12 cups  
c) 14.4 cups    d) 24 cups

\_\_\_\_\_ 2. Which is the better buy and by how much?

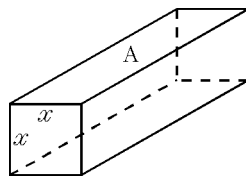
(I) 200 copies for \$14.00

(II) 300 copies for \$27.00

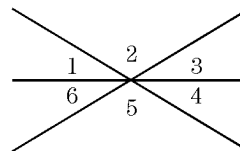
- a) I by 0.2¢/copy  
b) II by 0.2¢/copy  
c) I by 2¢/copy  
d) II by 2¢/copy

\_\_\_\_\_ 3. Which expression describes the volume of the rectangular prism?

- a)  $A^2x$   
b)  $Ax^2$   
c)  $Ax$   
d)  $A^2x^2$



\_\_\_\_\_ 4. Which angles are vertical angles?



- a)  $\angle 1$  and  $\angle 4$   
b)  $\angle 1$  and  $\angle 3$   
c)  $\angle 2$  and  $\angle 5$   
d) both  $a$  and  $c$

\_\_\_\_\_ 5. There are 15 socks in a drawer (8 white and 7 pink). What is the probability of pulling out a matching pair?

- a)  $\frac{1}{8}$     b)  $\frac{2}{15}$     c)  $\frac{1}{7}$     d)  $\frac{1}{5}$

\_\_\_\_\_ 6. A government surveyor is dividing a track of land into triangular shaped parcels. The triangles are equilateral and have sides equal to 60 yards. She finds that it is more efficient to make the parcels larger, so she triples the length of each side. What will be the *perimeter* of the new parcel?

- a) 200 yds      b) 450 yds  
c) 540 yds      d) 650 yds

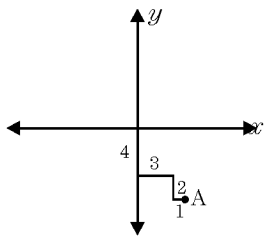
- \_\_\_\_\_ 7. Rich bought 6 tickets to a baseball game. The tickets ranged in price from \$5.50 to \$21.00. Which is *not* a reasonable price for all 6 tickets?

a) \$37.50            b) \$90.00  
c) \$120.00         d) \$130.00

- 
- \_\_\_\_\_ 8. Simplify:  $(\sqrt{9})^4$

a) 9    b) 27    c) 64    d) 81

- 
- \_\_\_\_\_ 9. Lines of various lengths are drawn on the coordinate plane, as shown in the figure below. What is the slope of the line drawn from the origin to point A?



a)  $-3$     b)  $-\frac{3}{2}$     c)  $\frac{3}{2}$     d)  $3$

- \_\_\_\_\_ 10. It takes 60 seconds to walk up a broken escalator and 40 seconds to ride up the same escalator when it is moving. How long will it take to walk up the escalator when it is moving?

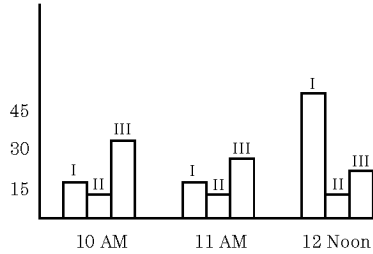
a) 24 seconds        b) 30 seconds  
c) 36 seconds        d) 48 seconds

- 
- \_\_\_\_\_ 11. The hypotenuse of a right triangle is 65 m long. If one of the legs is 39 m long, how long is the other leg?

a) 26 m                b) 52 m  
c) 61 m                d) 104 m

---

12. Erik made a graph of the number of cars, trucks and busses that passed by his house each hour at 10 am, 11 am, and 12 noon. The number of buses stayed about the same. The number of trucks increased after 12 noon, while the number of cars steadily declined. Looking at the graph shown, what is the most likely meaning of I, II, and III?



- a) I are busses, II are trucks, III are cars
- b) I are busses, II are cars, III are trucks
- c) I are trucks, II are busses, III are cars
- d) I are trucks, II are cars, III are busses

13. What property could be used to justify the statement  $2(a + b) = 2a + 2b$ ?
- a) Commutative Property of Multiplication
  - b) Associative Property of Multiplication
  - c) Multiplicative Identity
  - d) Distributive Property

14. Solve for  $x$ :  $x^{-2} = 5^{-\frac{2}{3}}$
- a)  $\frac{1}{\sqrt[3]{2}}$
  - b)  $\frac{1}{5}$
  - c)  $\sqrt[3]{5}$
  - d)  $\sqrt[3]{25}$

15. A student solves the following problem

Problem:  $2(x - 3) + 3x = 19$

- Step 1  $2x - 6 + 3x = 19$
- Step 2  $(2x + 3x) - 6 = 19$
- Step 3  $5x - 6 = 19$
- Step 4  $5x - 6 + 6 = 19 + 6$
- Step 5  $5x = 25$
- Step 6  $x = 5$

What property justifies step 4?

- a) Commutative Property of Addition
- b) Addition Property of Equality
- c) Multiplication Property of Equality
- d) Substitution

16. Find the equation of the line passing through the coordinates  $(3, 4)$  and  $(-2, 2)$ .
- a)  $y = 4x - 8$
  - b)  $y = \frac{5}{2}x - \frac{7}{2}$
  - c)  $y = \frac{2}{5}x + \frac{14}{5}$
  - d)  $y = \frac{2}{5}x - 2$

- \_\_\_\_\_ 17. The equation of the line perpendicular to  $2x + 5y = 20$  and containing the coordinate  $(10, -4)$  is:

- a)  $y = -\frac{2}{5}x$   
 b)  $y = -\frac{2}{5}x + 8$   
 c)  $y = -\frac{5}{2}x + 29$   
 d)  $y = \frac{5}{2}x - 29$

- 
- \_\_\_\_\_ 18. The perimeter of a rectangle is  $6x + 12$ . If the length is  $x + 3$ , what is the width?

- a)  $5x + 10$                   b)  $7x - 14$   
 c)  $2x + 3$                     d)  $2x - 3$

- 
- \_\_\_\_\_ 19. Simplify:  $\frac{(x + 5)^2}{25 - x^2}$

- a)  $\frac{3}{x + 5}$                       b)  $\frac{x + 5}{x - 5}$   
 c)  $-\frac{x + 5}{x - 5}$                     d)  $-\frac{3}{x + 5}$

- 
- \_\_\_\_\_ 20. Solve by completing the square:  
 $x^2 + 3x - 4 = 0$

- a)  $\{1, -4\}$                   b)  $\{-1, 4\}$   
 c)  $\{1, 4\}$                     d)  $\{-1, -4\}$

- \_\_\_\_\_ 21. Consider the function shown in the table. Which statement is true about  $h(x)$ ?

$x$	$h(x)$
-1	3
0	1
1	3
2	5

- a) The domain of  $h(x)$  is  $\{-1, 0, 1, 2\}$   
 b) The domain of  $h(x)$  is  $\{1, 3, 5\}$   
 c)  $h(0) + h(1) = h(-1) + h(-2)$   
 d) all of the above

- 
- \_\_\_\_\_ 22. In order to complete the square, which of the following is needed to fill in the blank?

$$\left(x^2 + \frac{b}{a}x + \underline{\hspace{1cm}}\right)$$

- a)  $\frac{b^2}{a^2}$                       b)  $\frac{b^2}{4a^2}$   
 c)  $\frac{b}{4a^2}$                       d)  $\frac{b}{2a}$

\_\_\_\_\_ 23. What type of function does the table represent?

$x$	$y$
-1	-3
0	-1
1	1
2	3
3	5

- a) linear
- b) quadratic
- c) cubic
- d) absolute value

---

\_\_\_\_\_ 24. Solve:  $4x^2 - 64 = 0$

- a)  $\{8, -8\}$
- b)  $\{4, -4\}$
- c)  $\{0, 8, -8\}$
- d)  $\{4, 8, -8\}$

---

\_\_\_\_\_ 25. Given that  $a < b < c < d$ , which of the following *must* be true?

- I.  $(b - a) < (d - c)$
  - II.  $(d - a)(c - b) > 0$
  - III.  $cd - ab > 0$
- a) I only
  - b) II only
  - c) I, II, and III
  - d) III only

**Answer List**

- |       |       |       |
|-------|-------|-------|
| 1. d  | 2. c  | 3. b  |
| 4. d  | 5. b  | 6. c  |
| 7. d  | 8. d  | 9. b  |
| 10. a | 11. b | 12. c |
| 13. d | 14. c | 15. b |
| 16. c | 17. d | 18. c |
| 19. c | 20. b | 21. a |
| 22. b | 23. a | 24. b |
| 25. b |       |       |

**Catalog List**

- |               |               |               |
|---------------|---------------|---------------|
| 1. CA1 AA 71  | 2. CA1 AD 47  | 3. CA1 AF 36  |
| 4. CA1 AG 3   | 5. CA1 AJ 134 | 6. CA1 AK 57  |
| 7. CA1 AM 4   | 8. CA1 BB 72  | 9. CA1 BE 42  |
| 10. CA1 BG 45 | 11. CA1 BI 60 | 12. CA1 BK 35 |
| 13. CA1 CA 12 | 14. CA1 CB 37 | 15. CA1 CE 1  |
| 16. CA1 CG 17 | 17. CA1 CH 19 | 18. CA1 CJ 36 |
| 19. CA1 CL 7  | 20. CA1 CN 26 | 21. CA1 CQ 13 |
| 22. CA1 CS 3  | 23. CA1 CU 3  | 24. CA1 CV 2  |
| 25. CA1 CY 2  |               |               |