

Fall Practice Proficiency

2006-2007

1. John is making a model airplane. The circumference of each wheel is 12.56 inches. What is the diameter of the wheel? Round to the nearest whole inch.
  - a) 4
  - b) 13
  - c)  $4\pi$
  - d)  $13\pi$
  
2. A rectangular pool needs to be 4 feet longer than it is wide. The total area of the pool will be  $96 \text{ ft}^2$ . What are the dimensions of the pool in feet?
  - a)  $4 \times 24$
  - b)  $6 \times 12$
  - c)  $8 \times 12$
  - d)  $10 \times 14$
  
3. What is an equivalent algebraic statement of "Four times  $x$  is less than twenty-eight?"
  - a)  $4x - 28$
  - b)  $28 - 4x$
  - c)  $4x < 28$
  - d)  $28 < 4x$
  
4. A pole vaulter enters a competition when the height is 2 feet below his best. Colin's best height is 390 cm. At which height, in feet, should he enter the competition?
  - a) 6
  - b) 8
  - c) 11
  - d) 13
  
5. Kelly leaves a shopping mall at noon and drives east at a speed of 30 miles per hour. Vicki leaves the same mall 2 hours after Kelly and drives east on the same road at a speed of 40 miles per hour. How many miles from the mall will they be when Vicki reaches Kelly?
  - a) 120
  - b) 180
  - c) 240
  - d) 720
  
6. Jim needs to surround a square area in a parking lot with 60 large orange traffic cones. Each cone must be placed 5 feet apart. How many feet long is one side of the square?
  - a) 12
  - b) 15
  - c) 60
  - d) 75
  
7. A shelf measures  $12\frac{3}{4}$  cm by  $23\frac{5}{8}$  cm. What is the approximate area of the shelf in square centimeters?
  - a) 240
  - b) 276
  - c) 312
  - d) 375
  
8. What is the value of  $n$  in the equation  $7n - 12 = 16$ ?
  - a)  $\frac{4}{7}$
  - b)  $\frac{7}{4}$
  - c) 4
  - d) 28
  
9. Internet Movie Rental Company A charges an annual fee of \$48.00 plus \$1.00 per movie rental. Internet Movie Rental Company B charges a monthly fee of \$5.00 plus \$.50 per movie rental. How many rentals in a year would be needed for the rental companies to cost the same amount?
  - a) 12
  - b) 18
  - c) 24
  - d) 48
  
10. A student has 4 movies that she wants to see. How many different ways can she arrange the order in which she sees the 4 movies?
  - a) 4
  - b) 8
  - c) 16
  - d) 24

11. When rolling a fair six-sided die, what is the probability of rolling a number greater than five?
- $\frac{1}{6}$
  - $\frac{1}{3}$
  - $\frac{2}{3}$
  - $\frac{5}{6}$
12. Which type of graph would best represent data that compares student shoe sizes to their height?
- bar graph
  - scatterplot
  - circle graph
  - box-and-whisker plot
13. What is the next term in the sequence 1, 6, 11, 16, ...?
- 17
  - 21
  - 22
  - 27
14. The formula for the volume of a cone is  $V = \frac{1}{3}\pi r^2 h$ . Which of the equations below is a possible representation when solving for  $h$ ?
- $h = \frac{V\pi r^2}{3}$
  - $h = \frac{3\pi r^2}{V}$
  - $h = V - \frac{r^2 h}{3}$
  - $h = \frac{3V}{\pi r^2}$
15. A student answers 17 out of 20 questions correctly on a quiz. What percent of the questions did the student answer correctly?
- 97
  - 95
  - 87
  - 85
16. What is the sum of the exterior angles of a pentagon?
- $900^\circ$
  - $540^\circ$
  - $360^\circ$
  - $120^\circ$
17. Which is the most precise measurement?
- 525 gallons
  - 525 liters
  - 525 milliliters
  - 525 pints
18. How many fluid ounces are in 5 pints? (2 cups = 1 pint and 8 ounces = 1 cup)
- 10
  - 20
  - 40
  - 80
19. The volume of a cylinder is  $128\pi \text{ cm}^3$  and has a height of 8 cm. What is the radius of the cylinder in centimeters?
- 4 cm
  - 8 cm
  - 16 cm
  - 42 cm
20. Which expression is equivalent to  $(x^2 + 2x - 3) - (x^2 + 5x - 7)$ ?
- $7x - 10$
  - $3x - 4$
  - $-3x + 4$
  - $-7x + 10$

21. A pilot is adjusting the plane's altitude because of turbulence. The plane descends 500 feet, then ascends 700 feet, and continues to ascend another 25 feet before descending 140 feet. What is the plane's net change in feet in flying altitude?

- a) 285 feet
- b) 85 feet
- c) -85 feet
- d) -285 feet

22. At a baseball game, people wear either a red, blue, or green shirt. Four out of every ten people wear red shirts. Two third of the remaining people wear green shirts. There were 1200 people at the game. Based on this data, how many people wore a blue shirt?

- a) 160
- b) 240
- c) 480
- d) 720

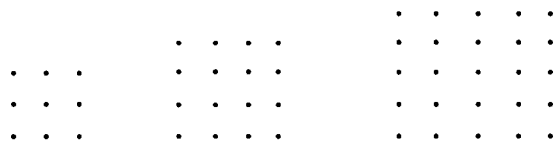
23. Which expression is equivalent to  $x^2 - 9$ ?

- a)  $(x - 3)^2$
- b)  $(x - 9)^2$
- c)  $(x - 3)(x - 3)$
- d)  $(x + 3)(x - 3)$

24. A family's total monthly income is \$3000. They spend 35% of their income on housing, 18% on food, 15% on utilities, 12% on transportation, and 10% on entertainment. The remaining money is invested in a college fund. How much money does the family invest monthly in their college fund?

- a) \$150
- b) \$300
- c) \$450
- d) \$600

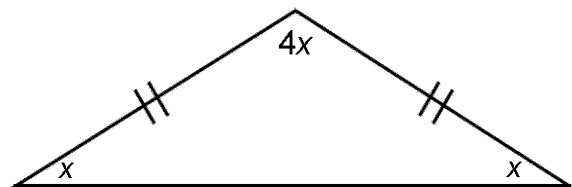
25. A sequence is represented by the figures below.



Which expression would be used to represent the  $n$ th term in the sequence?

- a)  $n^2$
- b)  $2n$
- c)  $n^2 + 2$
- d)  $(n + 2)^2$

26. Use the following isosceles triangle.



What is the measure of the vertex angle?

- a)  $15^\circ$
- b)  $30^\circ$
- c)  $60^\circ$
- d)  $120^\circ$

27. The timesheet below shows the hours worked and rate of pay for one week.

Employee	Pay Rate	Hours Worked
A	\$5.25	40
B	\$7.00	32
C	\$8.25	21
D	\$9.75	18

Which employee will earn the **least** amount of money for the week?

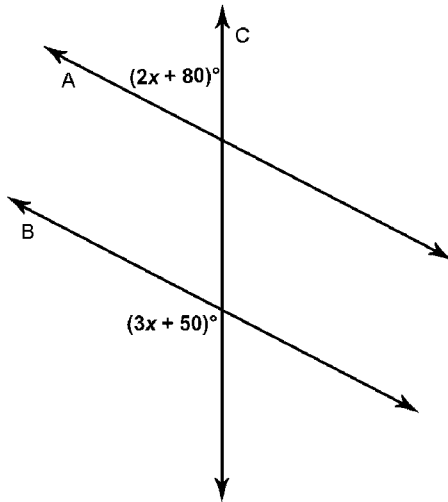
- a) A
- b) B
- c) C
- d) D

28. Store A and Store B are combining inventories to create Megastore C. The inventories of Stores A and B are recorded in the matrices below.

		STORE A		STORE B				
		SHIRTS	PANTS	SHIRTS	PANTS			
DENIM	[	30	20	DENIM	[	14	21	]
KHAKI	[	15	10	KHAKI	[	13	12	]

How many khaki pants will Megastore C have in its inventory?

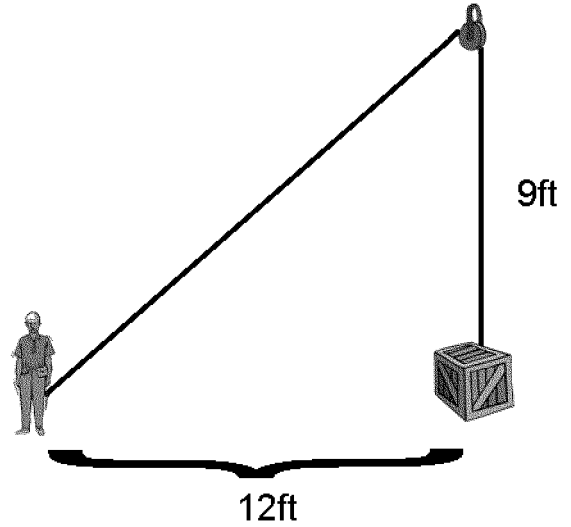
- a) 22
  - b) 28
  - c) 41
  - d) 44
29. In the following graph, line A is parallel to line B.



What is the value of  $x$ ?

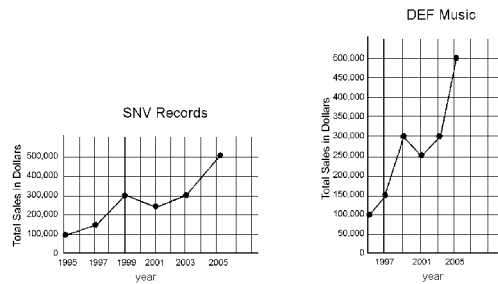
- a) 6
- b) 10
- c) 30
- d) 50

30. A person is standing 12 feet away from a box. A 24 foot rope is used to lift the box through a pulley centered 9 feet above the box.



The pulley was lowered 3 feet and the person is standing 4 feet closer to the box. What is the new length of rope needed to lift the box in feet?

- a) 10 feet
  - b) 16 feet
  - c) 24 feet
  - d) 31 feet
31. Below are two graphs showing the total sales of different music companies.



Which statement best describes the data?

- a) DEF Music shows a greater increase in sales
- b) SNV Records produced half the sales as DEF Music
- c) SNV Records and DEF Music had the same total sale increase
- d) DEF Music did not show as many years of sales as SNV Records

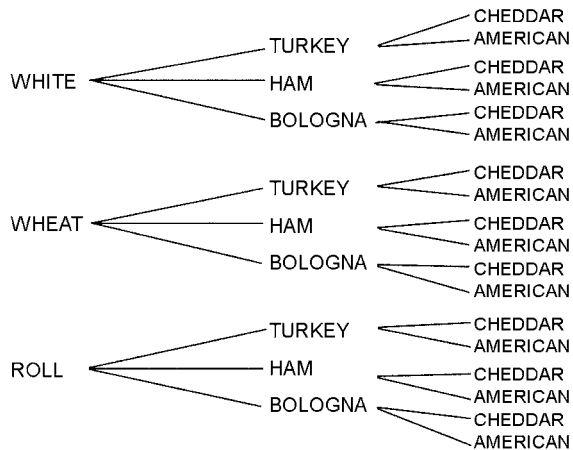
32. The frequency table below represents data collected from rolling a die 80 times.

Number rolled	1	2	3	4	5	6
Frequency	10	12	13	14	15	16

Which statement best compares the experimental probability with the theoretical probability of rolling a number less than 4?

- a) The probabilities are the same
- b) The experimental probability is greater than the theoretical probability
- c) The theoretical probability cannot be calculated
- d) The experimental probability is less than the theoretical probability

33. Troy wanted to know how many different sandwiches he could make with 3 types of bread, 3 types of meat, and 2 types of cheese. He made the tree diagram below.



How many different sandwiches can Troy make?

- a) 6
- b) 12
- c) 18
- d) 30

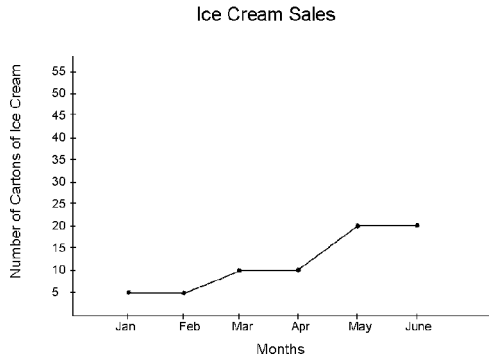
34. The following table represents the total distance a person walked in a ten hour period of time.

Distance	Time
5 mi	1 hr
15 mi	3 hr
35 mi	7 hr
50 mi	10 hr

Which graph corresponds with the table?

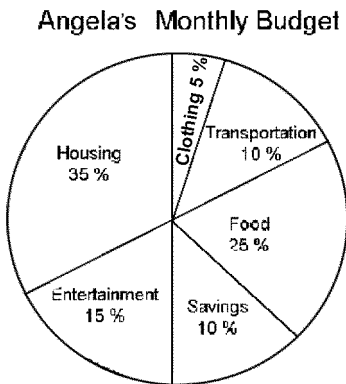
- a)
- b)
- c)
- d)

35. Below is a graph showing the number of cartons of ice cream Mike sold in his shop from January to June.



Following the trend of sales, how many cartons should Mike expect to sell in July?

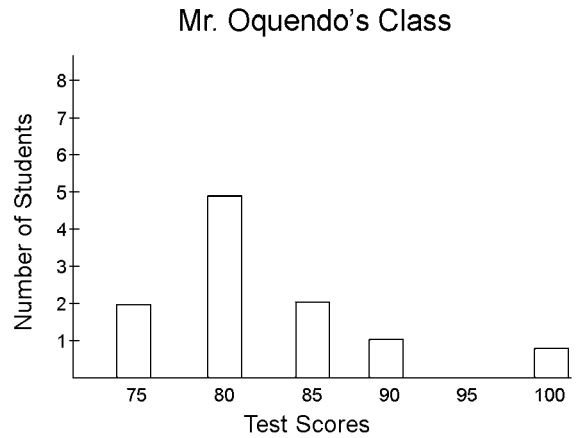
- a) 10
  - b) 20
  - c) 30
  - d) 40
36. The following is a circle graph showing the breakdown of Angela's monthly budget.



Last month Angela earned \$2,000. How much did she spend on food and clothing?

- a) \$100
- b) \$200
- c) \$500
- d) \$600

37. The following graph shows test scores for 11 of the students in Mr. Oquendo's class.



What is the approximate mean test score of the 11 students?

- a) 74
- b) 83
- c) 86
- d) 91

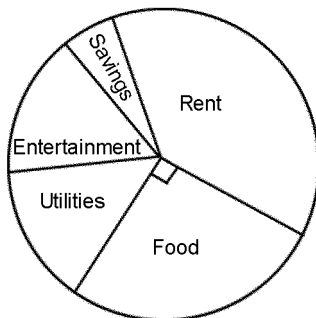
38. Two fair six-sided die are rolled. The following table shows the sum of the numbers that can be rolled.

		number on second die					
		1	2	3	4	5	6
number on first die	1	2	3	4	5	6	7
	2	3	4	5	6	7	8
	3	4	5	6	7	8	9
	4	5	6	7	8	9	10
	5	6	7	8	9	10	11
	6	7	8	9	10	11	12

The dice are rolled 20 times. A sum greater than seven appears in 8 of those rolls. What is the relationship between theoretical and experimental probabilities that a sum greater than seven is rolled?

- a) Experimental is greater than theoretical  
 b) Experimental is less than theoretical  
 c) Experimental is less than or equal to theoretical  
 d) Experimental is greater than or equal to theoretical
39. Tom has a monthly budget of \$5,000.

### Tom's Monthly Budget



How much money does Tom spend on food?

- a) \$2,500  
 b) \$1,660  
 c) \$1,250  
 d) \$1,000

40. Consider the table of values shown below.

$x$	1	2	3	4	5
$y$	11	13	15	17	19

Which equation represents the relationship of  $x$  to  $y$ ?

- a)  $y = \frac{1}{2}x + 10$   
 b)  $y = x + 10$   
 c)  $y = 2x + 9$   
 d)  $y = \frac{3}{2}x + 9$

**Answer List**

- |       |       |       |
|-------|-------|-------|
| 1. a  | 2. c  | 3. c  |
| 4. c  | 5. c  | 6. d  |
| 7. c  | 8. c  | 9. c  |
| 10. d | 11. a | 12. b |
| 13. b | 14. d | 15. d |
| 16. c | 17. c | 18. d |
| 19. a | 20. c | 21. b |
| 22. b | 23. d | 24. b |
| 25. d | 26. d | 27. c |
| 28. a | 29. b | 30. b |
| 31. c | 32. b | 33. c |
| 34. a | 35. d | 36. d |
| 37. b | 38. b | 39. c |
| 40. a |       |       |

**Catalog List**

- |     |     |     |
|-----|-----|-----|
| 1.  | 2.  | 3.  |
| 4.  | 5.  | 6.  |
| 7.  | 8.  | 9.  |
| 10. | 11. | 12. |
| 13. | 14. | 15. |
| 16. | 17. | 18. |
| 19. | 20. | 21. |
| 22. | 23. | 24. |
| 25. | 26. | 27. |
| 28. | 29. | 30. |
| 31. | 32. | 33. |
| 34. | 35. | 36. |
| 37. | 38. | 39. |
| 40. |     |     |