

# ALGEBRA

Key

## FINAL EXAM REVIEW PACKET

### CH. 1-6

#### Keep in mind...

- Must show your work for credit...even if it's simple
- If you do work on another sheet of paper, staple it to your packet.
- Due the day of your final
- If you are going to take the final exam somewhere else, you need to tell me before the exam.

#### Things to bring the day of final...

- Calculator (not on phone or iPod)!!!
- Thinking Cap
- 2 pencils
- An eraser
- This packet
- Your game face
- Water/Snack
- Something to work on after the exam

**COMPREHENSIVE TEST, Chapters 1-6**In 1–29, *multiple choice*. Give the letter of the correct answer.1. Which number is larger than  $\frac{28}{5}$ ?

(a)  $\frac{17}{3}$

(b)  $\frac{29}{6}$

(c)  $\frac{3}{2}$

(d) 5.5

1. a2. If  $m\angle P = 33^\circ$ , what is the measure of the complement of  $\angle P$ ?

(a)  $57^\circ$

(b)  $67^\circ$

(c)  $147^\circ$

(d)  $157^\circ$

2. a3. Solve  $\frac{16p}{7} = \frac{2p-7}{4}$ .

(a) 11.22449

(b) 0.98

(c) -11.22449

(d) -0.98

3. d

4. Out of the 32 students in math class, 19 of them either play an instrument or sing in the choir. Nine of the students play an instrument but do not sing in the choir. Four of the students sing in the choir but do not play an instrument. How many students do both?

(a) 5

(b) 6

(c) 7

(d) 8

4. b5. Simplify  $\frac{t+5}{t-3} + \frac{2+t}{t-3}$ .

(a)  $\frac{t+7}{t-3}$

(b)  $\frac{2t+7}{t-3}$

(c)  $\frac{t+7}{2t-6}$

(d)  $\frac{2t+7}{2t-6}$

5. b6. The original price of the dress Minnie bought was  $D$  dollars. How much did she actually pay for the dress if she applied a \$15 coupon to her purchase?

(a)  $D$

(b) 15

(c)  $D + 15$

(d)  $D - 15$

6. d7. Evaluate  $(\sqrt{3})^2 + \sqrt{9} \cdot \sqrt{9}$ .

(a) 90

(b) 84

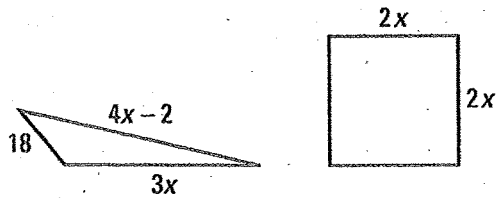
(c) 18

(d) 12

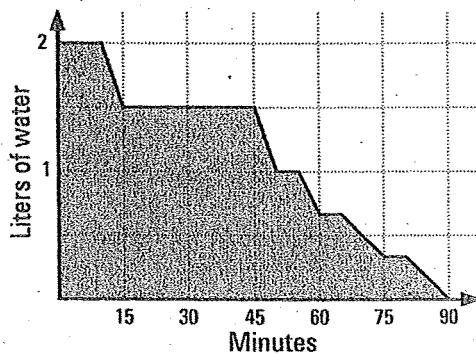
7. d

▶ **COMPREHENSIVE TEST, Chapters 1-6 page 2**

8. If the perimeter of the triangle is equal to the perimeter of the square, then the length of a side of the square is

8. b

- (a) 36 units.                      (b) 32 units.  
 (c) 18 units.                      (d) 16 units.
9. Which occurs under a size change of magnitude  $-3$ ?
- (a) an expansion only  
 (b) a contraction only  
 (c) an expansion and a rotation of  $180^\circ$   
 (d) a contraction and a rotation of  $180^\circ$
10. The graph below shows the amount of water left in Evan's 2-liter water bottle after a certain period of time. How long did Evan wait between his first and second drinks of water?

9. C10. C

- (a) 75 min                      (b) 45 min  
 (c) 30 min                      (d) 15 min
11. Mr. Simpson pays \$1.39 per gallon for gasoline. What is the cost of the gasoline per mile if his car gets 30 miles to the gallon?
- (a) 21.6¢                      (b) \$2.16  
 (c) \$4.60                      (d) 4.6¢

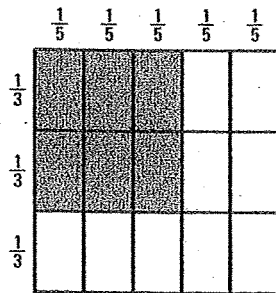
11. d

► **COMPREHENSIVE TEST, Chapters 1-6 page 3**12. The numbers  $-2$  and  $-\frac{1}{2}$  are *not*

- (a) additive inverses.                      (b) multiplicative inverses.  
 (c) real numbers.                            (d) reciprocals.

12.   a  

13. What multiplication is pictured by the shaded region below?



- (a)  $\frac{1}{5} \cdot \frac{1}{3}$                                       (b)  $\frac{1}{5} \cdot \frac{2}{3}$   
 (c)  $\frac{2}{3} \cdot \frac{3}{5}$                                       (d)  $2 \cdot 3$

13.   c  14. Solve  $2 - 3(u + 4) = 5$ .

- (a)  $u = -5$                                       (b)  $u = -\frac{19}{3}$   
 (c)  $u = 5$                                         (d)  $u = \frac{19}{3}$

14.   a  15. Simplify  $\frac{m}{3} + \frac{2m+6}{3}$ .

- (a)  $\frac{m+6}{3}$                                         (b)  $m + 2$   
 (c)  $m + 3$                                         (d)  $\frac{3m+6}{6}$

15.   b  

16. The mileage reading on the odometer of car A is 31,250 and on car B is 30,990. Martha drives car A at 40 miles per hour and Matt drives car B at 53 miles per hour. If both people begin driving at 1:00 P.M., at what time will the odometers on the two cars have the same mileage reading?

- (a) 7:00 P.M.                                      (b) 8:00 P.M.  
 (c) 9:00 P.M.                                      (d) 9:00 A.M.

16.   d  

17. Which equation is an instance of the Distributive Property?

- (a)  $-(a - b) = -a + b$                       (b)  $a \cdot 1 = 1 \cdot a = a$   
 (c)  $a \cdot \frac{1}{a} = \frac{1}{a} \cdot a = a$                       (d)  $a + -a = 0$

17.   a

► **COMPREHENSIVE TEST, Chapters 1-6 page 4**

18. In 1991, 30.9% of the households in the United States owned at least one cat. If 80,000 U.S. households were randomly chosen in 1991, how many of those households would you expect to own at least one cat?

- (a) 24,720 (b) 30,900  
(c) 49,100 (d) 55,280

18. a

19. On a map,  $\frac{3}{4}$  inch represents 400 miles. If the distance between two cities is 3 inches on the map, what is the actual distance between the cities?

- (a) 1,200 miles (b) 1,600 miles  
(c) 3,600 miles (d) 4,800 miles

19. b

20. In 1992, 16 ounces of peanut butter cost \$1.88 and was increasing at an average rate of 3¢ per year. At this rate, what could the cost of 16 ounces of peanut butter be in eight years?

- (a) \$0.24 (b) \$2.12  
(c) \$2.36 (d) \$5.64

20. b

21. The Garfield family saved  $D$  dollars for vacation expenses. Their plan was to use the money as follows:  $\frac{1}{4}$  for food,  $\frac{1}{5}$  for transportation,  $\frac{2}{5}$  for hotels, and the remaining \$600 for unforeseen expenses. How much money did the Garfield family save for vacation?

- (a) \$8,400 (b) \$4,000  
(c) \$840 (d) \$510

21. b

22. Simplify  $\frac{9k}{16m} \cdot \frac{14}{18k}$ .

- (a)  $\frac{7m}{16}$  (b)  $\frac{7}{16m}$   
(c)  $\frac{81k^2}{112m}$  (d)  $\frac{112m}{81k^2}$

22. b

23. What is the image of  $(x, y)$  after a slide 3 units to the right and 4 units down?

- (a)  $(x + 3, y + 4)$  (b)  $(x + 3, y - 4)$   
(c)  $(x + 4, y + 3)$  (d)  $(x - 3, y - 4)$

23. b

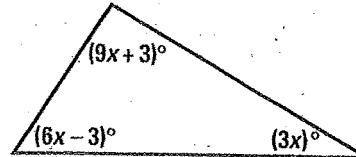
► **COMPREHENSIVE TEST, Chapters 1-6** page 5

24. Car rental Company A charges \$166 to rent a car for one week and offers unlimited mileage. Car rental Company B charges \$150 to rent a car for one week and 15¢ for each mile the car is driven. If  $x$  represents the number of miles traveled, which sentence describes when it is less expensive to rent a car from Company A than from Company B?

- (a)  $166 + 0.15x < 150$                       (b)  $166 + 15x > 150$   
 (c)  $166 < 150 + 0.15x$                       (d)  $166 > 150 + 0.15x$

24. C

25. Find the measure of the largest angle in the triangle at the right.



- (a)  $13^\circ$     (b)  $53^\circ$   
 (c)  $93^\circ$     (d)  $123^\circ$

25. C

26. It is 66 miles from Atlanta to Athens, Georgia, and 255 miles from Atlanta to Savannah, Georgia. What is the greatest distance possible between Athens and Savannah?

- (a) 311 miles    (b) 321 miles  
 (c) 189 miles    (d) 191 miles

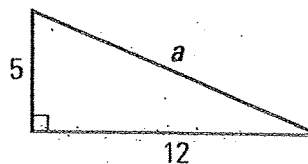
26. b

27. A multiple-choice quiz has five questions and every question has four possible answers. How many arrangements of answers are possible?

- (a) 3,125    (b) 1,024  
 (c) 625    (d) 20

27. b

28. Find the length of the hypotenuse in the right triangle at the right.



- (a) 7    (b) 13  
 (c) 17    (d) 169

28. b

29. Evaluate  $\frac{n(n+1)}{2}$  when  $n = 16$ .

- (a) 272    (b) 136  
 (c) 68    (d) 16

29. b

Now check all your work carefully.

**CHAPTER 5****Cumulative Form**

1. The polls for the upcoming election have shown that Candidate A has 31% of the vote and is gaining 1% each week. Candidate B has 25% of the vote and is gaining 2% each week.

a. Fill in the chart at the right.

1. a.

Week	Percent of Vote	
	Candidate A	Candidate B
0	31	25
1	32	27
2	33	29
3	34	31
4	35	33
5	36	35
6	37	37
7	38	39
8	39	41

- b. Let  $W$  = the number of weeks. Write an inequality that represents when Candidate A will be ahead of Candidate B in the polls.

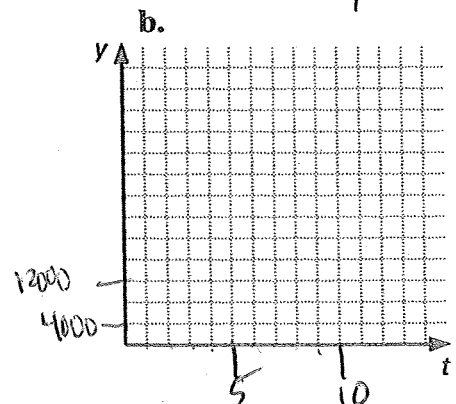
$$b. \quad 31 + (1 \cdot W) > 25 + 2W$$

2. The population of Midland is 14,200 and is increasing by 200 people each year. Central City has a population of 11,000 that is increasing by 600 people each year. Let  $y$  represent the population  $t$  years from now.

a. Write an equation to represent the population of each town.

2. a. Midland  $y = 14,200 + 200t$   
Central:  $y = 11,000 + 600t$

b. Graph the equations you wrote in Part a. (Be sure to label axes with an appropriate scale.)



c. Write and solve an equation that represents when the populations of the two towns will be equal.

c.  $14,200 + 200t = 11,000 + 600t$   
 $t = 8$

3. Horacio is  $d$  inches tall, Octavio is  $d + 5$  inches tall, and Abran is  $d - 6$  inches tall. Who is taller, Octavio or Abran? How much taller?

3. Octavio; 11 inches taller

4. Notebooks cost \$2.98 each. Explain how to use the Distributive Property to calculate mentally the cost of eight notebooks.

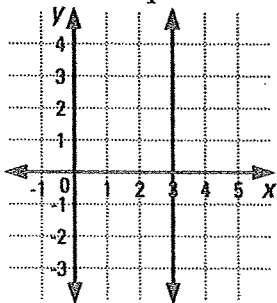
$$2.98(8) = (3 - .02) \cdot 8 = 3 \cdot 8 - .02 \cdot 8 = 24 - .16 = 23.84$$

\$23.84

5. A good plan for having enough storage in a kitchen is to allot 6 square feet of storage for each family member and 12 square feet of general shelving space. Give the amount of storage needed in a kitchen for a family of  $n$  people.

5.  $(12 + 6n) \text{ ft}^2$

6. Write an equation for the line graphed below.



6.  $x = 6$

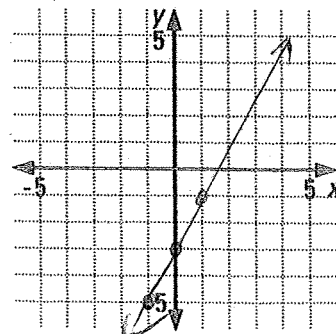
7. a. Fill in the table for the equation  $y = 2x - 3$ .

7. a.

$x$	$y$
-2	-7
-1	-5
0	-3
1	-1
2	1

- b. Graph the equation in Part a.

b.





In 8–10, simplify.

8.  $(4x + 5y) - (8x + 2y)$

9.  $(5k)^2$

10.  $\frac{n}{n^2}$

8.  $\frac{-4x + 3y}{}$

9.  $\frac{25k^2}{}$

10.  $\frac{1}{n}$

11. Consider the equation solved below:

Given:  $-18 = -2n + 6$

Step 1:  $-24 = -2n$

Step 2:  $12 = n$

a. What was done to get Step 1?

b. What was done to get Step 2?

11. a.  $-6$  was added

b.  $-2$  divided both sides

In 12–17, solve.

12.  $9x + 24 = 12x - 15$

13.  $12n + 16 \geq 2n$

14.  $\frac{n-6}{2} + \frac{2}{3} = \frac{n+1}{3}$

15.  $(2x + 1)^2 = 49$

16.  $50.2 - y = 2.4$

17.  $\frac{3}{7}n = 84$

12.  $x = 13$

13.  $n \geq -1.6$

14.  $n = 16$

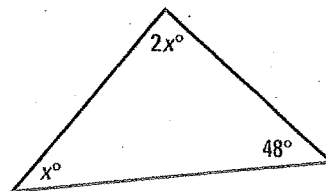
15.  $x = -4, x = 3$

16.  $x = 47.8$

17.  $n = 196$

18. Is 2 a solution to  $5(y + 6) = 8(y - 3)$ ? Explain why or why not.No. When 2 is substituted for  $y$ , the equation becomes  $5(2+6) = 8(2-3)$  or  $40 = -8$  False19. Solve  $6x - 2y = 18$  for  $y$ .

19.  $y = 3x - 9$

20. Find the value of  $x$  in the triangle at the right.

20.  $x = 44$

Now check all your work carefully.