Name _____

Score _____

Cumulative Test 16B

Math Course 3

*Also take **Power-Up Test 16***

1. (3, 25) A car traveled 216 miles on 7.2 gallons of fuel. The car averaged how many miles per gallon?

2. (63) There are 10 boys and 14 girls in a class. What percent of the students in the class are girls?

3. (56) Sketch a graph of the equation $y = -2x + 5$

4. (77) Solve and graph the solution on a number line: $-2x > 6$

5. (70) The weight of the load varies directly with the number of boxes in the load. A load of 18 boxes weighs 390 lbs. What does a load of 12 boxes weigh?

6. (67) The sales tax rate is 7.5%. What is the total cost, including tax, of an item priced at $42.00?

7. (29, 32) A bag contains blue marbles and red marbles in a ratio of 4 to 5. If one marble is drawn, what is the probability that the marble is not red?

8. (Inv. 2) The sides of a triangle are 12 cm, 35 cm, and 37 cm. Is the triangle a right triangle? Justify your answer.

9. (64, 72) The carpet cost $27 per square yard. Use two unit multipliers to find the cost per square foot.

10. (71) If the dimensions of a rectangle are decreased by 50%, then the area of the rectangle is decreased by what percent?

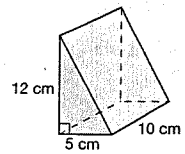
11. (Inv. 2, 75) The vertices of a trapezoid are at (−3, −3), (5, −3), (2, 3), and (−2, 3). What is the area of the trapezoid?

12. (73) A formula for the following sequence is $a_n = n(n + 2)$

3, 8, 15, 24, . . .

What is the tenth term of the sequence?

For questions 13 and 14, refer to the triangular prism.



13. (76) What is the volume of the prism?

14. (Inv. 2, 20) What is the perimeter of the base of the prism?

For questions 15 and 16, solve for x.

15. (79) $2(x + 3) = x - 4$

16. (50, 79) $4x + 8 = x + 14$

For questions 17 and 18, simplify the expression.

17. (31, 51) $4y^{-1}x^2y^2 - 3x^2y$

18. (78) $\sqrt{10} \cdot \sqrt{18}$

For questions 19 and 20, complete the calculation.

19. (80)
$$\begin{array}{r} 1 \text{ hr } 30 \text{ min } 45 \text{ sec} \\ +\ 1 \text{ hr } 55 \text{ min } 40 \text{ sec} \\ \hline \end{array}$$

20. (80)
$$\begin{array}{r} 2 \text{ yd } 1 \text{ ft } 1 \text{ in.} \\ -\ 1 \text{ yd } 1 \text{ ft } 4 \text{ in.} \\ \hline \end{array}$$

NAME: Study Guide
Pre-Algebra

TEST: 16

SCORE: ____________

1. 216 miles in 7.2 gallons

$216 \div 7.2 =$ **30 miles per gallon**

2.

	%	#
Boys		
Girls	?	14
Total	100	24

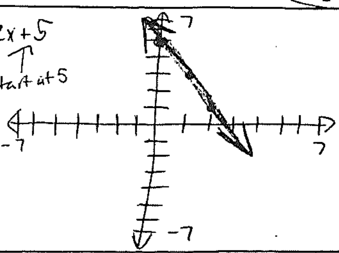
$\frac{x}{100} = \frac{14}{24}$

$14 \cdot 100 = 1400$

$1400 \div 24 =$ **$58.\overline{3}\%$**

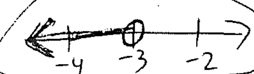
3. $y = -2x + 5$

down 2, over 1; start at 5



4. $\frac{-2x}{-2} > \frac{6}{-2}$ * Flip symbol because divided by negative!

$x < -3$



5.

Boxes	18	12
Pounds	390	?

$390 \cdot 12 = 4680$

$4680 \div 18 =$ **260 lbs.**

6. $x\left(\frac{7.5\%}{100}\right)$ of \$42

$42 \div 100 = .42$

$.42 \times 7.5 = \$3.15$ tax

$\$42 + \$3.15 =$ **\$45.15 total**

7.

Blue	4	2
Red	5	7

Prob (Not Red) = **$\frac{4}{9}$**

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

$12^2 + 35^2 = 37^2$

$144 + 1225 = 1369$

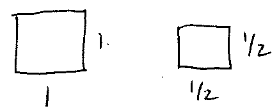
$1369 = 1369$

Yes, Pythag. Theorem was true

9. $\frac{\$27}{1yd^2} \cdot \left(\frac{1yd}{3ft}\right) \cdot \left(\frac{1yd}{3ft}\right) = \frac{\$27}{9ft^2}$

\$3 per ft²

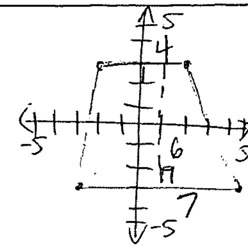
10.



A = 1   A = .25

$1 - .25 = .75$ **75% decrease**

11.



$A = \frac{1}{2} \cdot (b_1 + b_2) \cdot h$

$A = \frac{1}{2} \cdot (7 + 4) \cdot 6$

$A = \frac{1}{2} \cdot 11 \cdot 6$

$A = 33\ un^2$

12. $a_n = n(n+2)$

$a_{10} = 10(10+2)$

$a_{10} = 10(12)$

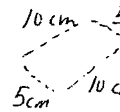
$a_{10} = 120$

13. $V = (L \cdot W \cdot H) \div 2$

$V = (5 \cdot 10 \cdot 12) \div 2$

$V = 300\ cm^3$

14.



$P = 5 + 10 + 5 + 10$

P = 30cm.

15. $2(x+3) = x - 4$

$2x + 6 = x - 4$

$-1x \quad\quad -1x$

$1x + 6 = -4$

$-6 \quad -6$

$1x = -10$

$X = -10$

16. $4x + 8 = 1x + 14$

$-1x \quad\quad -1x$

$3x + 8 = 14$

$-8 \quad -8$

$\frac{3x}{3} = \frac{6}{3}$

$X = 2$

17. $4y^{-1}x^2y^2 - 3x^2y$

$\frac{4 \cdot x \cdot x \cdot y \cdot y}{y} - 3 \cdot x \cdot x \cdot y$

$4x^2y - 3x^2y =$ **$1x^2y$**

18. $\sqrt{10} \cdot \sqrt{18} = \sqrt{180}$

180 → 18, 10 → 2, 3, 3, 2, 5

$\sqrt{2 \cdot 2 \cdot 3 \cdot 3 \cdot 5}$

$2 \cdot 3\sqrt{5} =$ **$6\sqrt{5}$**

19.
1 hr 30 min 45 sec
+ 1 hr 55 min 40 sec
2 hr 85 min 85 sec
120 min, 60 → 25 sec
4 hr. 25 min 25 sec

= **4 hr 25 min 25 sec**

20.
2 yd 1 ft 1 in (3 ft, 13 in)
− 1 yd 1 ft 4 in

2 ft 9 in