Name _____

Score _____

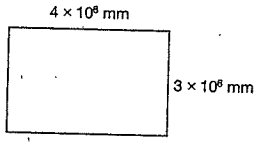
Cumulative Test 18A

Math Course 3

Also take Power-Up Test 18

1. (67) An architect creates house plans for a client using the scale 1 in. = 4 ft. A room that will be 18 feet long is how many inches long on the plan?

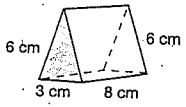
2. (46) A small town occupies a rectangle of land as shown. Express the area of the town in scientific notation.



3. (67) The price of the item was $48.00 plus 7.5% sales tax. What was the total price including tax?

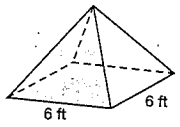
4. (68) If a coin is flipped four times, what is the probability of getting heads all four times?

5. (85) What is the lateral surface area of this triangular prism?



6. (83) A bag contains four red marbles, three blue marbles, two yellow marbles, and one green marble. Two marbles are drawn from the bag, one at a time, without replacement. What is the probability of drawing two blue marbles?

7. (86) The height of a pyramid with a square base is 4 ft. What is the volume of the pyramid?



8. (73) Which of the following equations is a rule for this sequence?

6, 11, 16, 21, . . .

A. $a_n = n + 5$

B. $a_n = 5n + 1$

C. $a_n = 6n - 1$

D. $a_n = n(5 + 1)$

9. (9, 90) Which of the following represents the union of the set of prime numbers and the set of composite numbers?

A. {. . . −2, −1, 0, 1, 2, . . .}

B. {0, 1, 2, 3, . . .}

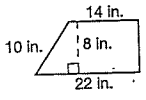
C. {1, 2, 3, 4, . . .}

D. {2, 3, 4, 5, . . .}

10. (89) Which x and y pair of numbers is a solution to both of these equations?

$$\begin{cases} x + y = 6 \\ y - x = 2 \end{cases}$$

11. (75) What is the area of this trapezoid?



For questions 12 and 13, use this information:

The vertices of parallelogram *ABCD* are at A(0,0), B(4, 0), C(5, 3), and D(1, 3).

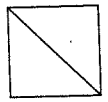
12. (60) What is the area of parallelogram *ABCD*?

13. (Inv. 5) Parallelogram *ABCD* is dilated by a scale factor of 2 from the origin. What are the coordinates of vertex C' of the image $A'B'C'D'$?

14. (53) Write $\frac{5}{9}$ as a percent and as a decimal rounded to three decimal places.

15. (21) Expand: $5x(2x - 3)$

16. (Inv. 3, 74) The area of a square is 25 square units. How many units is the diagonal of the square?



For questions 17 and 18, solve for the unknown variable.

17. (25, 50) $0.05 + 0.2x = 0.11$

18. (25, 44) $\frac{1.5}{25} = \frac{0.3}{n}$

For questions 19 and 20, simplify the expression.

19. (51) $x^{-2}y^3x^3y^0$

20. (78) $3\sqrt{5} \cdot 2\sqrt{10}$

NAME: PRE-ALGEBRA STUDY GUIDE TEST: 10th TEST

SCORE:

1. $\frac{4\text{ in}}{4\text{ feet}} = \frac{x}{18\text{ feet}}$

$18 \cdot 1 = 18$

$18 \div 4 =$ 4.5 feet

2. AREA = Length × Width

$A = (3 \times 10^6)(4 \times 10^6)$ ← multiply #'s, Add exponents

$A = 12 \times 10^{12}$ ← move decimal so 1st # is between 1–10.

$A = 1.2 \times 10^{13}\ mm^2$

3.

$\frac{7.5}{100}$ of \$48 ←

$48 \div 100 = .48$

$.48 \times 7.5 = \$3.60$ tax

total \$ = $\$48 + \$3.60 =$ \$51.60

OR

7.5% ← $.075 \times 48 = \$3.60$ tax

total \$ = $\$48 + \$3.60 =$ \$51.60

4. $\frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{16}$

1st time, 2nd time, 3rd time, 4th time

5. Lateral Surface Area = (Perimeter of base) · (Height)

(3+6+6) · (8)

(15) · 8 = 120 cm^2

↑ Bases are triangl

6. 4 red, 3 blue, 2 yellow, 1 green = 10 total

Blue 1st time = $\frac{3}{10}$

Blue 2nd time = $\frac{2}{9}$

$\frac{3}{10} \cdot \frac{2}{9} = \frac{6}{90} \div 6 = \frac{1}{15}$

7. $V = \frac{1}{3} \cdot (\text{Area of base}) \cdot \text{height}$

$V = \frac{1}{3} \cdot (6 \times 6) \cdot 4$

$V = \frac{1}{3} \cdot 36 \cdot 4$

$V = 48\ ft^3$

8. 6, 11, 16, 21

B

$a_n = 5n + 1$

$a_{1st} = 5(1) + 1 = 6$ (1st #)

$a_{2nd} = 5(2) + 1 = 11$ (2nd #)

$a_3 = 5(3) + 1 = 16$ (3rd #)

$a_4 = 5(4) + 1 = 21$ (4th #)

9. (Union of prime & composite) = All primes & composites

because 0 & 1 are not prime or composite ⇒ D

10. $x + y = 6$

$y - x = 2$

(3, 4)

could be 6 & 0, 3 & 3, 5 & 1 ... $x = 2$, or (2, 4)

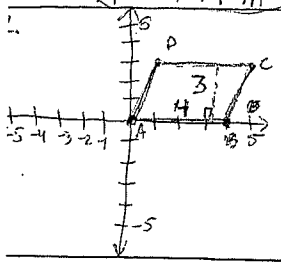
1. $A = \frac{1}{2} \cdot (b_1 + b_2) \cdot h$

$A = \frac{1}{2} \cdot (22 + 14) \cdot 8$

$A = \frac{1}{2} \cdot 36 \cdot 8$

$A = 144\ in^2$

2.



$A = b \cdot h$

$A = 4 \cdot 3$

$A = 12\ units^2$

3.

A (0,0) → Scale → A' (0,0)

B (4,0) → Factor → B' (8,0)

C (5,3) → of 2 → C' (10,6)

D (1,3) → (multiply by 2) → D' (2,6)

4. $\frac{5}{9} = .555555$

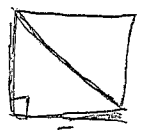
As a percent = $55.\overline{5}\%$

As a decimal to 3 places = .556

5. $5x(2x - 3)$

$10x^2 - 15x$

16.



Area of square = 25

Each side is 5

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

$5^2 + 5^2 = c^2$

$25 + 25 = c^2$

$\sqrt{50} =$

17. $.05 + .2x = .11$

$-.05 \quad -.05$

$.2x = .06$

$\frac{.2x}{.2} = \frac{.06}{.2}$

$x = .3$

$\sqrt{2 \cdot 5 \cdot 5} = 5\sqrt{2}$ units

18. $\frac{1.5}{25} = \frac{0.3}{n}$

$25 \times .3 = 7.5$

$7.5 \div 1.5 = 5$

19. $x^{-2} y^3 x^3 y^0 = \frac{y \cdot y \cdot y \cdot x \cdot x \cdot x}{x \cdot x} =$

$\frac{y \cdot y \cdot y \cdot x \cdot x \cdot x}{x \cdot x} = x^1 y^3$

20. $3\sqrt{5} \cdot 2\sqrt{10} = 6\sqrt{50}$

$6\sqrt{50} = 6\sqrt{2 \cdot 5 \cdot 5}$

$= 30\sqrt{2}$

50 → 5, 10 → 2, 5