Name: **Key** _____ Date: _____ Class: ____

Cumulative Test Units 1 and 2

1. Solve $\frac{1}{4}x = 60$

   (a.) x = 240   b. x = 80   c. x = 15   d. x = 180

   $\frac{\cancel{4}}{1} \cdot \frac{\cancel{1}}{4} x = 60 \cdot \frac{4}{1}$

   $x = \frac{240}{1} = 240$

2. Simplify $(6b^3)^2$

   a. $12b^6$ b. $12b^5$ (c.) $36b^6$ d. $36b^5$

   $(6b^3)^2 = (6 \cdot b \cdot b \cdot b)^2 = 6 \cdot b \cdot b \cdot b \cdot 6 \cdot b \cdot b \cdot b = 36b^6$

3. What is the fraction equivalent to $.\overline{25}$

   (a.) $\frac{25}{99}$ b. $\frac{1}{4}$ c. $\frac{25}{100}$ d. $\frac{1}{25}$

   $0.\overline{25} = \frac{25}{99}$ (two digits are being repeated)

4. Find the value of v.

   116°
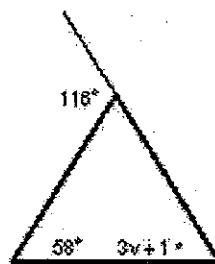
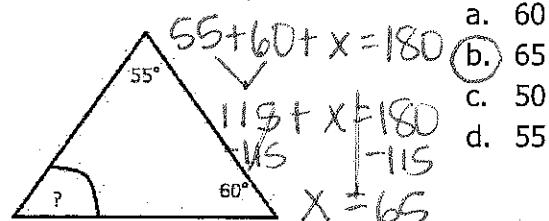   58°   3v+1°

   a. 5
   (b.) 19
   c. 54
   d. 58

   $116 = \boxed{58} + 3v\boxed{+1}$

   $116 = 59 + 3v$
   $-59 \quad -59$
   $\frac{57}{3} = \frac{3v}{3}$
   $19 = v$

5. Find the missing angle.

   55°

   ?   60°

   a. 60
   (b.) 65
   c. 50
   d. 55

   $55 + 60 + x = 180$
   $115 + x = 180$
   $115 \quad -115$
   $x = 65$

6. Which of the following describes the transformation at the right?

   a. Dilation with a scale factor of 2.
   b. Rotation of 90° counterclockwise
   (c.) Reflection over the x-axis
   d. Translation up 2 units

   Flipped
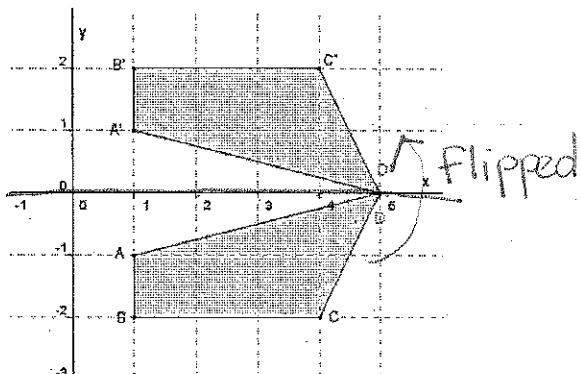
7. Which of the following describes the movement of a figure that is transformed according to the rule

   $(x,y) \rightarrow (x - 7, y + 1)$

   a. Translation vertically 7 units and horizontally 1 unit
   (b.) Translation horizontally -7 units and vertically 1 unit
   c. Translation horizontally 7 units and vertically -1 unit
   d. Translation vertically 7 units and horizontally -1 unit

   $(x-7, y+1)$
   ↑ horizontal   ↖ vertical

8. Which of the following best describes the solution to the following equation?

$2(2x - 1) + 2x = 6(x - 1)$

a. ½   b. 0   c. no solution   d. infinite solutions

Handwritten work:

$2(2x - 1) + 2x = 6(x - 1)$

$\boxed{4x} - 2 \boxed{+ 2x} = 6x - 6$

$6x - 2 \neq 6x - 6$

$\quad -6x \qquad -6x$

$-2 \neq -6$

no solution

9. Which is the best estimate for $\sqrt{8}$

a. 4.2   b. 2.5   c. 2.8   d. 4.3

Handwritten: $\sqrt{8}$ $\sqrt{4} = 2$ $\sqrt{9} = 3$

10. Simplify $\sqrt{100}$

a. 100   b. 10   c. 50   d. 2

Handwritten: $\sqrt{100} = 10$ (since $10 \times 10 = 100$)

11. Simplify $\frac{a^4}{a^6}$

a. a^{24} b. a^{-2} c. a^2 d. $\frac{1}{a^2}$

Handwritten: $\frac{a^4}{a^6} = \frac{a \cdot a \cdot a \cdot a}{a \cdot a \cdot a \cdot a \cdot a \cdot a} = \frac{1}{a^2}$

12. Which is the best example of a number written in scientific notation?

a. 5×10^5 b. $.1254 \times 10^2$ c. 5.367×10^{-3} d. 12.5×10^2

Handwritten: coefficient must be ≥ 1 and < 10

13. A rectangular section of a wilderness will be set aside as a new wildlife refuge. Its dimensions are 5×10^5 meters by 4×10^4 meters. Find the area of the land in square meters.

a. 9×10^1 square meters   b. 9×10^9 square meters   c. 2×10^{10} square meters   d. 20×10^9 square meters

Handwritten:

5×10^5

4×10^4

length × width = area

$(5 \times 10^5)(4 \times 10^4) = $ area

$20 \times 10^{5+4} = A$

$20 \times 10^9 = A$

$20000000000.$

$2.0 \times 10^{10} = A$

14. Which of the following numers is not equivalent to the others?

a. 2^2 b. 4^1 c. $\sqrt[2]{16}$ d. $\sqrt[3]{8}$

Handwritten: $2^2 = 2 \cdot 2 = 4$ $4^1 = 4$ $\sqrt{16} = 4$ $\sqrt[3]{8} = 2$

not between 1 and 10

15. Which of the following is an irrational number?

a. ¼   b. π c. $.\overline{3}$ d. $\sqrt[3]{64}$

Handwritten:

fraction

repeating decimal $.\overline{3} = \frac{3}{9} = \frac{1}{3}$

whole # $\sqrt[3]{64} = 4 = \frac{4}{1}$

non-terminating non-repeating decimal