8th Grade Review: EOC Prep

Spring 2013

Name: _____

Directions: The following questions are sample items similar to those found on the EOC Exam. Answer each to the best of your ability.
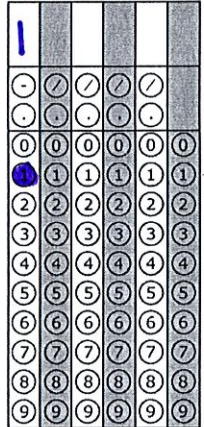
1. Alex walked 1 mile in 15 minutes. Sally walked 3,520 yards in 24 minutes. In miles per hour, how much faster did Sally walk than Alex?

   (Note: 1 mile = 1,760 yards)

   $\boxed{5-4=1}$

   Alex: $\dfrac{1 \text{ mile}}{15 \text{ min}} \cdot \dfrac{60 \text{ min}}{1 \text{ hr}} = \dfrac{60 \text{ mile}}{15 \text{ hr}} = \dfrac{4 \text{ miles}}{1 \text{ hour}}$

   Sally: $\dfrac{3520 \text{ yd}}{24 \text{ min}} \cdot \dfrac{60 \text{ min}}{1 \text{ hr}} \cdot \dfrac{1 \text{ mile}}{1760 \text{ yd}} = \dfrac{120 \text{ miles}}{24 \text{ hr}} = \dfrac{5 \text{ miles}}{1 \text{ hour}}$
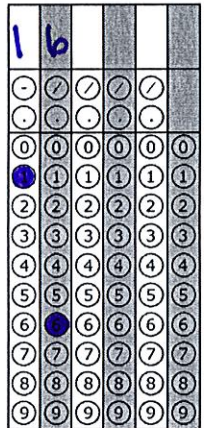
2. Suppose that the function $f(x) = 2x + 12$ represents the cost to rent x movies a month from an internet movie club. Makayla now has $10. How many more dollars does Makayla need to rent 7 movies next month?

   $f(7) = 2(7) + 12$
   $= 14 + 12$
   $= 26$

   she has $10
   Total cost $26
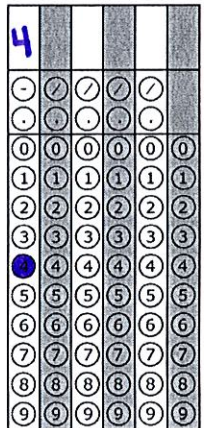   she needs $26 - $10 = $16

3. Katie and Jennifer are playing a game.

   - Katie and Jennifer each started with 100 points.
   - At the end of each turn, Katie's points doubled.
   - At the end of each turn, Jennifer's points increased by 200.

   At the start of which turn will Katie first have more points than Jennifer?

	1	2	3	4
Katie	100	200	400	800
Jennifer	100	300	500	700

   Turn #4

4. What is the solution of the inequality $-6x - 17 \geq 8x + 25$?

   (1) $x \geq 3$
   (2) $x \leq 3$
   (3) $x \geq -3$
   (4) $x \leq -3$

   $-6x - 17 \geq 8x + 25$
   $-14x - 17 \geq 25$
   $-14x \geq 42$
   $x \leq -3$

5. The volume of a sphere is 2,400 cubic centimeters. What is the *approximate* diameter of this sphere? $\left(\text{Volume of a sphere} = \frac{4}{3}\pi r^3\right)$

A 16.6 cm

B 10.1 cm

C 8.3 cm

D 4.2 cm

(handwritten):
$2400 = \frac{4}{3}\pi r^3$
$7200 = 4\pi r^3$
$\frac{7200}{4\pi} = \frac{4\pi r^3}{4\pi}$
$\sqrt[3]{572.96} = \sqrt[3]{r^3}$
$r = 8.3$

$d = 2r$
$d = 2(8.3)$
$d = 16.6$

6. Energy and mass are related by the formula $E = mc^2$.

- m is the mass of the object.
- c is the speed of light.

Which equation finds m, given E and c?

A $m = E - c^2$

B $m = Ec^2$

C $m = \frac{c^2}{E}$

D $m = \frac{E}{c^2}$

(handwritten):
$\frac{E}{c^2} = \frac{mc^2}{c^2}$
$m = \frac{E}{c^2}$

#7: $xy - d = m$
$xy = m + d$
$y = \frac{m+d}{x}$

7. Solve for y: $xy - d = m$

[1] $y = \frac{m+d}{x}$ ✓   [2] $y = \frac{m-d}{x}$ [3] $y = m + d - x$ [4] $xy = m + d$

8. If $s = \frac{2x+t}{r}$, then x equals

(1) $\frac{rs - t}{2}$

(2) $\frac{rs + 1}{2}$

(3) $2rs - t$

(4) $rs - 2t$

(handwritten):
$s = \frac{2x+t}{r}$
$rs = 2x + t$
$rs - t = 2x$
$x = \frac{rs - t}{2}$

9. The equation $s = 2\sqrt{5x}$ can be used to estimate the speed, s, of a car in miles per hour, given the length in feet, x, of the tire marks it leaves on the ground. A car traveling 90 miles per hour came to a sudden stop. According to the equation, how long would the tire marks be for this car?

A 355 feet

B 380 feet

C 405 feet

D 430 feet

(handwritten):
$s = 90$
$x = ?$
$90 = 2\sqrt{5x}$
$(45)^2 = (\sqrt{5x})^2$
$2025 = 5x$
$x = 405$