Item Keys and Commentary

August 2011 Item #15

Option 1 is correct. The rate of change of the data is $-\frac{1}{2}$ which is negative.

Teacher note: Students are required to apply their knowledge of slope and rate of change to multiple functions and representations within one question versus only one function as in the past.

June 2009 Item #24

Option 3 is correct. The graph of the polynomial intersects the x-axis at points (–6, 0) and (3, 0). These are the only points on the graph where $y = 0$.

Teacher note: Students are required to apply new vocabulary and the corresponding notation.

January 2011 Item #28

Option 2 is correct.

$x = -3$ and $x = 5$
$x + 3 = 0$ and $x - 5 = 0$
$0 = (x + 3)(x - 5)$
$0 = x^2 + 3x - 5x - 15$
$0 = x^2 - 2x - 15$

Teacher note: Students are required to apply new vocabulary (zeros) and the corresponding notation.

June 2012 Item #25

Option 3 is correct.

Let n = the 1st odd integer
Then $n + 2$ = the 2nd consecutive odd integer
and
$n + 4$ = the 3rd consecutive odd integer

Therefore, three consecutive odd integers that sum to –3 can be represented as

$n + (n + 2) + (n + 4) = -3$

Teacher note: In line with the fifth instructional shift (Application), students are required to apply two concepts such as consecutive integers and Pythagorean Theorem.

June 2011 Item #35

Let x = # of games played

$45 \geq 20 + 15 + .65x$
$45 \geq 35 + .65x$
$10 \geq .65x$
$15.38 \geq x$

Chelsea can play a maximum of 15 games.

Teacher note: This question is an example of the increased rigor called for by the Common Core Learning Standards. Questions that had been worth 3 points may be worth only 2 points on a Common Core Regents Exam.

August 2008 Item #37

Let m = the cost of one marker
Let p = the cost of one pencil

$(3m + 2p = 1.80)\ (-3) \quad = \quad -9m - 6p = -5.40$
$4m + 6p = 2.90 \quad = \quad 4m + 6p = 2.90$

$-5m = 2.50$
$m = .50$

$3m + 2p = 1.80$
$3(.50) + 2p = 1.80$
$1.50 + 2p = 1.80$
$2p = .30$
$p = .15$

One marker costs \$0.50 and one pencil cost \$0.15.

Teacher note: Students are required to not only solve a system of equations/inequalities, but may need to justify their solution as well.

January 2012 Item #36

Let t = the turtle's time

$t = \frac{100ft}{20ft/min} = 5$ minutes

Let r = the rabbit's time

$r = \frac{50ft}{40ft/min}$ + 3 minutes + $\frac{50ft}{40ft/min}$

$r = \frac{100ft}{40ft/min}$ + 3 minutes = 2.5 minutes + 3 minutes = 5.5 minutes

The turtle won the race by 0.5 minutes.

Teacher note: Students are required to represent data in multiple ways and interpret their findings.

January 2013 Item #35

Let n = the cost of one notebook
Let p = the cost of one pencil

$(3n + 4p = 8.50)\ (5) \quad = \quad 15n + 20p = 42.50$
$(5n + 8p = 14.50)\ (-3) \quad = \quad -15n - 24p = -43.50$

$-4p = -1$
$p = .25$

$3n + 4p = 8.50$
$3n + 4(.25) = 8.50$
$3n + 1 = 8.50$
$3n = 7.50$
$n = 2.50$

One pencil cost \$0.15 and one marker costs \$0.50.

Teacher note: Students are allowed to find a solution using multiple pathways. Also, students now need to complete six point questions which include an increased level of depth of understanding, application and the ability to justify their solution.