NEW YORK STATE
COMPONENT RETEST

MATHEMATICS A
COMPONENT 5
MODULE 1

MONDAY, MAY 12, 2003

SCORING KEY
AND
RATING GUIDE

Multiple Choice Key

1	1
2	2
3	3
4	3
5	4
6	2

Math A Component Retest
May 2003
Component 5, Module 1

Key to Multiple-Choice Questions

(1)	1
(2)	2
(3)	3
(4)	3
(5)	4
(6)	2

Rubric

(7)

[4] Mean = 20, median = 16.5, and mode = 31, and appropriate work is shown.

[3] Mean = 20, median = 16.5, and mode = 31, but no work is shown for the mean, but the data are ordered for the median.

or

[3] The mean and median are correct, and appropriate work is shown, but the mode is incorrect.

or

[3] Appropriate work is shown, and the mode is correct, but one computational error is made when finding the mean or median.

or

[3] 20, 16.5, and 31, and appropriate work is shown, but the values are not identified as the mean, median, or mode, or they are identified incorrectly.

[2] The median and mode are found correctly, and appropriate work is shown, but the mean is not found or more than one computational error is made in finding the mean.

or

[2] The mean is found correctly, but the median and mode are not found or are found incorrectly.

[1] Only the median or mode is found correctly, but appropriate work is shown.

or

[1] Mean = 20, median = 16.5, and mode = 31, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

Part II

Answer all questions in this part. Each correct answer will receive 4 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. [12]

7 In eight consecutive football games, the Buffalo Bills scored the following number of points: 31, 16, 10, 31, 16, 17, 8, 31. Determine the mean, median, and mode for this set of scores.

mean = 20
median = 16.5
mode = 31

$8 + 10 + 16 + 16 + 17 + 31 + 31 + 31 = \frac{160}{8} = 20$

$\frac{33}{2} = 16.5$

SCORE POINT: 4

Part II

Answer all questions in this part. Each correct answer will receive 4 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. [12]

7 In eight consecutive football games, the Buffalo Bills scored the following number of points: 31, 16, 10, 31, 16, 17, 8, 31. Determine the mean, median, and mode for this set of scores.

→ mean = 20

→ median = 16.5

→ mode = 31, 16

8, 10, 16, (16+17), 31, 31, 31

16+17 = 33

33/2 = 16.5

31
16
10
31
16
17
8
+ 31
160

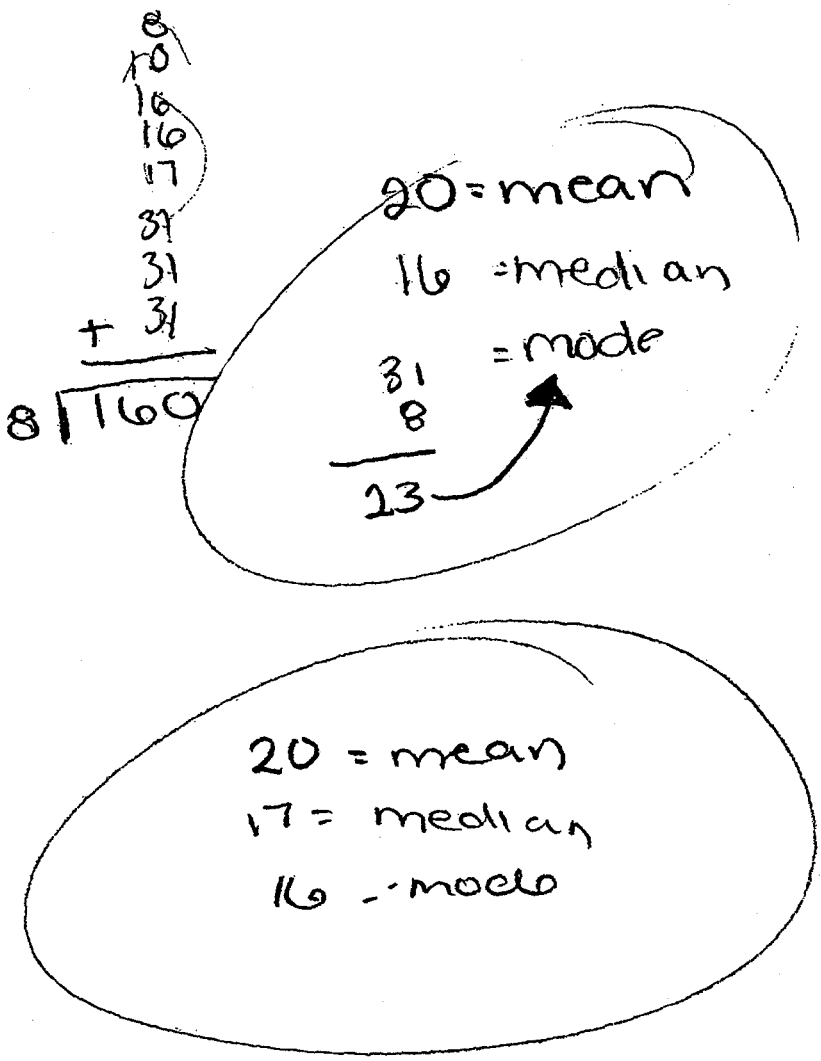
160 ÷ 8 = 20

SCORE POINT: 3

Part II

Answer all questions in this part. Each correct answer will receive 4 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. [12]

7 In eight consecutive football games, the Buffalo Bills scored the following number of points: 31, ~~16~~, ~~10~~, 31, ~~16~~, ~~17~~, ~~8~~, 31. Determine the mean, median, and mode for this set of scores.

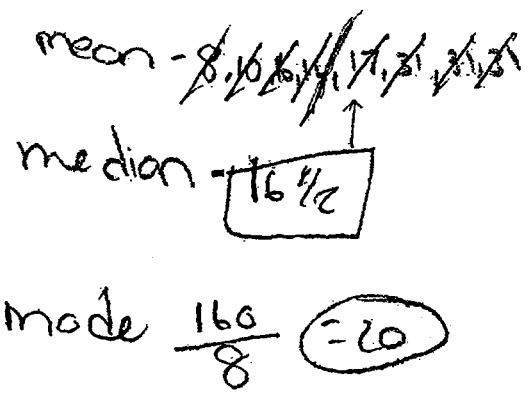


SCORE POINT: 2

Part II

Answer all questions in this part. Each correct answer will receive 4 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. [12]

7 In eight consecutive football games, the Buffalo Bills scored the following number of points: 31, 16, ~~10~~, 31, 16, 17, ~~8~~, 31. Determine the mean, median, and mode for this set of scores.



SCORE POINT: 1

Part II

Answer all questions in this part. Each correct answer will receive 4 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. [12]

7 In eight consecutive football games, the Buffalo Bills scored the following number of points: 31, 16, 10, 31, 16, 17, 31, 31. Determine the mean, median, and mode for this set of scores.

16, 10, 16, 16, 17, 31, 31, 31

13.5 median

10 11 12 13 14 15 16 17

SCORE POINT: 0

Rubric

(8)

[4] $117, and appropriate work is shown, such as $2.25(4 \times 10 + 2 \times 3 + 2 \times 3)$.

[3] Appropriate work is shown, but one computational error is made.

[2] The cost of tiling two of the three regions is calculated correctly.

or

[2] Correct area is found and appropriate work is shown, but no cost is calculated.

or

[2] Correct area is found, but no work is shown, but a correct cost is calculated.

or

[2] The area is found incorrectly, such as by using an incorrect area formula, but an appropriate cost is calculated.

or

[2] Appropriate work is shown, but more than one computational error is made.

[1] The perimeter is found instead of the area, but it is correctly multiplied by $2.25.

or

[1] $117, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

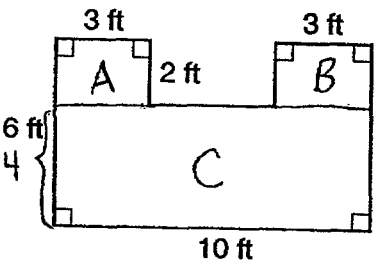
8 Sammy is planning to tile the floor shown in the accompanying diagram. If each tile measures 1 foot by 1 foot and costs $2.25, what will be the cost of tiling the floor?

$\text{Area}_A = 3(2) = 6\ ft^2$

$\text{Area}_B = 3(2) = 6\ ft^2$

$\text{Area}_C = 4(10) = 40\ ft^2$

$52\ ft^2$

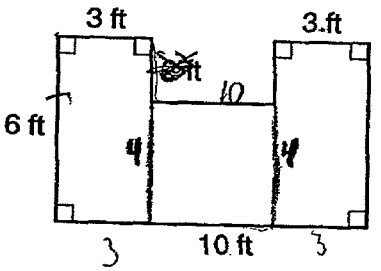


52
x 2.25
117

$117

SCORE POINT: 4

8 Sammy is planning to tile the floor shown in the accompanying diagram. If each tile measures 1 foot by 1 foot and costs $2.25, what will be the cost of tiling the floor?



$A = lw$ $A = lw$ $A = lw$

$A = 3(6)$ $A = 3(6)$ $A = 10(4)$

$A = 18$ $A = 18$ $A = 40$

40
+18
18
76

76
× 2.25
171

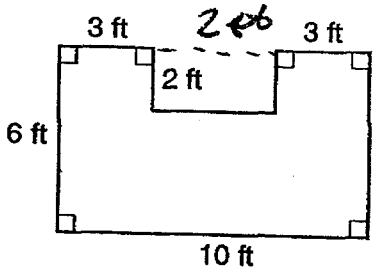
ans

SCORE POINT: 3

8 Sammy is planning to tile the floor shown in the accompanying diagram. If each tile measures 1 foot by 1 foot and costs $2.25, what will be the cost of tiling the floor?

$A = 2W$

$A = 10 \cdot 6$

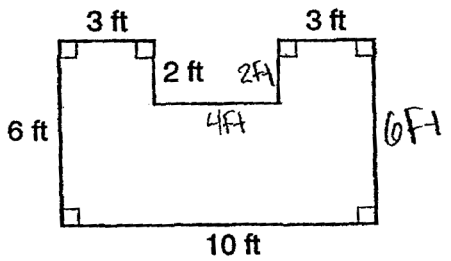


60×2.25

$\$ 135.00$

SCORE POINT: 2

8 Sammy is planning to tile the floor shown in the accompanying diagram. If each tile measures 1 foot by 1 foot and costs $2.25, what will be the cost of tiling the floor?



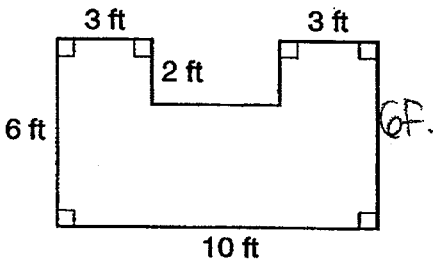
10
6
6
3
2
4
2
+ 3
36

$2.25
x 36
$81.00

Cost=$81.00

SCORE POINT: 1

8 Sammy is planning to tile the floor shown in the accompanying diagram. If each tile measures 1 foot by 1 foot and costs $2.25, what will be the cost of tiling the floor?



Circled ones aren't answers!

6ft + 6ft = 12ft

12ft • 2.25 = 27

3ft + 3ft = 6f

6ft • 2.25 = 13.50

2ft • 2.25 = 4.50

10ft • 2.25 = 22.5

27.00
13.50
4.50
+ 22.50

$67.50 is the cost of tiling the floor.

SCORE POINT: 0

Rubric

(9)

[4] 53° and 20, and appropriate work is shown, such as $\cos A = \frac{15}{25}$ and the 3–4–5 Pythagorean triple is stated.

[3] Appropriate work is shown, but one computational error is made.

or

[3] The height is found correctly and a correct equation is written to find the angle, but no further correct work is shown.

[2] One conceptual error is made, but appropriate answers are found.

or

[2] Either the angle or the height is determined correctly, and appropriate work is shown.

[1] 53° and 20, but no work is shown.

[0] 53° *or* 20, but no work is shown.

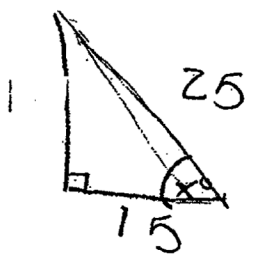
or

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

9 A 25-foot wire stretches from the top of a vertical pole to a stake 15 feet from the base of the pole on level ground.

Find the angle that the wire makes with the ground to the *nearest degree*.

Find the height of the pole to the *nearest foot*.



$\cos x = \frac{15}{25}$

$x = 53.1$

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

$a^2 + 15^2 = 25^2$

$a^2 + 225 = 625$

$a^2 = 400$

$a = \sqrt{400}$

$a = 20$

The angle is 53°.
The pole is 20 feet from the ground

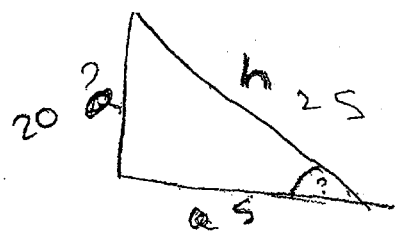
9-1

SCORE POINT: 4

9 A 25-foot wire stretches from the top of a vertical pole to a stake 15 feet from the base of the pole on level ground.

Find the angle that the wire makes with the ground to the *nearest degree.*

Find the height of the pole to the *nearest foot.*



SOH
CAH
TOA

$\sin x = \frac{20}{25}$

$\sin x = 0.8$

$\sin x = 54$

$15^2 + x^2 = 25^2$

$225 + x^2 = 625$

$x^2 = 400$

$x = 20$

pole = 20ft

nearest degree = 54°

SCORE POINT: 3

9 A 25-foot wire stretches from the top of a vertical pole to a stake 15 feet from the base of the pole on level ground.

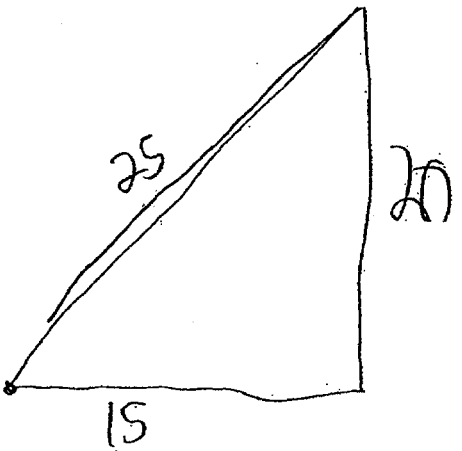
Find the angle that the wire makes with the ground to the *nearest degree*.

Find the height of the pole to the *nearest foot*.

$A^2+b^2=C^2$

$15^2+b^2=25^2$

20ft



$225+b^2=625$

-225

$b^2=400$

$\sqrt{400}$

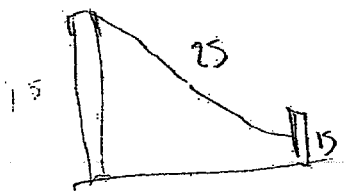
$b=20$

SCORE POINT: 2

9 A 25-foot wire stretches from the top of a vertical pole to a stake 15 feet from the base of the pole on level ground.

Find the angle that the wire makes with the ground to the *nearest degree*.

Find the height of the pole to the *nearest foot*.



50ft

$A^2 + b^2 = c^2$

$A^2 + 15^2 = 25^2$

$A + 75 = 625$

$-75 \quad -75$

50

15
x 5
75

SCORE POINT: 0