

NAME: \_\_\_\_\_

1. 010417b

A garden in the shape of an equilateral triangle has sides whose lengths are 10 meters. What is the area of the garden?

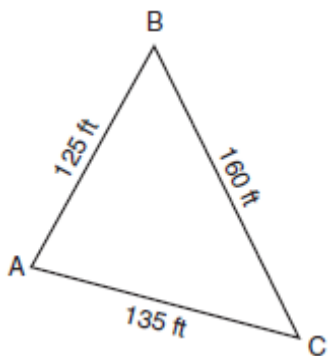
- [A]  $50 \text{ m}^2$                       [B]  $25 \text{ m}^2$   
[C]  $50\sqrt{3} \text{ m}^2$                 [D]  $25\sqrt{3} \text{ m}^2$

2. 060634b, P.I. A2.A.73

A triangular plot of land has sides that measure 5 meters, 7 meters, and 10 meters. What is the area of this plot of land, to the *nearest tenth of a square meter*?

3. 060933b, P.I. A2.A.73

The accompanying diagram shows a triangular plot of land located in Moira's garden.



Find the area of the plot of land, and round your answer to the *nearest hundred square feet*.

4. 080734b, P.I. A2.A.73

A farmer has a triangular field with sides of 240 feet, 300 feet, and 360 feet. He wants to apply fertilizer to the field. If one 40-pound bag of fertilizer covers 6,000 square feet, how many bags must he buy to cover the field?

5. 060333b, P.I. A2.A.73

A farmer has determined that a crop of strawberries yields a yearly profit of \$1.50 per square yard. If strawberries are planted on a triangular piece of land whose sides are 50 yards, 75 yards, and 100 yards, how much profit, to the *nearest hundred dollars*, would the farmer expect to make from this piece of land during the next harvest?

[1] D \_\_\_\_\_

[6] 16.2, and appropriate work is shown, such as using the Law of Cosines to find one angle,

and then using  $K = \frac{1}{2}ab \sin C$  or Hero(n)'s

formula,  $A = \sqrt{s(s-a)(s-b)(s-c)}$ , to find the area.

[5] Appropriate work is shown, but one computational or rounding error is made.

[4] Appropriate work is shown, but two or more computational or rounding errors are made.

[3] Appropriate work is shown, but one conceptual error is made, but an appropriate area is found.

or [3] The Law of Cosines is used to find a correct measure for one of the angles of the triangle, but no further correct work is shown.

[2] Appropriate work is shown, but one conceptual error and one computational or rounding error are made.

[1] Correct substitution is made into the Law of Cosines, but no further correct work is shown.

or [1] 16.2, but no work is shown.

[0] Right triangle trigonometry is used inappropriately.

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

[2] obviously incorrect procedure. \_\_\_\_\_

[6] 8,200, and appropriate work is shown, such as using the Law of Cosines or Hero(n)'s formula.

[5] Appropriate work is shown, but one computational or rounding error is made.

[4] Appropriate work is shown, but two or more computational or rounding errors are made.

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

or [3] The Law of Cosines is used to find an angle, but no further correct work is shown.

[2] Appropriate work is shown, but one conceptual error and one computational or rounding error are made.

[1] A correct substitution is made into the Law of Cosines, but no further correct work is shown.

or [1] 8,200, 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

[3] incorrect procedure. \_\_\_\_\_

[6] 6, and appropriate work is shown, such as determining the area of the field, using Heron's formula or using the Law of Cosines to determine one angle of the triangle,

followed by  $A = \frac{1}{2}ab \sin C$ , and then

$A \div 6000$ .

[5] Appropriate work is shown, but one computational or rounding error is made.

[4] Appropriate work is shown, but two or more computational or rounding errors are made.

or [4] Appropriate work is shown to find the area of the triangle, but the number of bags of fertilizer is not found.

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

or [3] The Law of Cosines is used to find an angle, and substitution is made into the correct area equation, but no further correct work is shown.

[2] Appropriate work is shown, but one conceptual error and one computational or rounding error are made.

or [2] The Law of Cosines is used to find an angle, but no further correct work is shown.

[1] Correct substitution is made into the Law of Cosines, but no further correct work is shown.

or [1] 6, 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

[4] incorrect procedure.

[6] 2,700, and appropriate work is shown, such as using the Law of Cosines and finding the area of the triangle.

[5] Appropriate work is shown, but one computational or rounding error is made.

[4] Appropriate work is shown, but more than one computational or rounding error is made.

or [4] Appropriate work is shown, and the area of the triangle is determined correctly, but the dollar amount is not determined or is determined incorrectly.

or [4] The Law of Cosines is used correctly to determine an angle, but an incorrect procedure is used to find the area, but an appropriate dollar amount is found.

or [4] The Law of Cosines is used incorrectly to determine an angle, but a correct procedure is used to find the area, and an appropriate dollar amount is found.

[3] The Law of Cosines is used correctly to determine an angle, but an incorrect procedure is used to find the area, and the dollar amount is not determined or is determined incorrectly.

[2] The Law of Cosines is used correctly to determine an angle, but no further correct work is shown.

[1] A correct equation using the Law of Cosines is written, but no further correct work is shown.

or [1] 2,700, 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

[5] incorrect procedure.