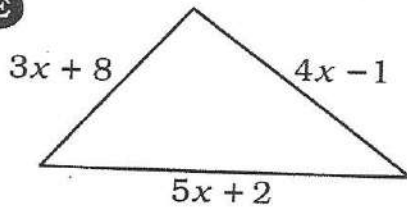


# Alg.1 Snow Packet #6 Show your work. Mystery Message

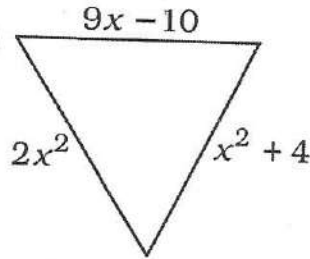
Do each exercise and find your answer at the bottom of the page. Write the letter of the exercise in the box above the answer. (Assume that figures that appear to be rectangular are rectangles.)

## Part 1. Find the perimeter.

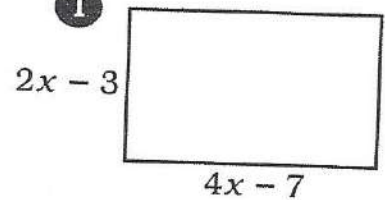
**E**



**O**

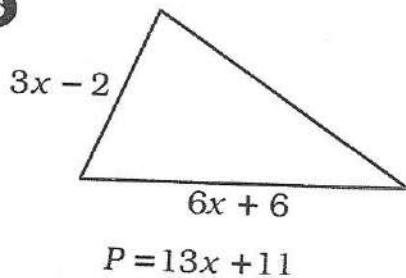


**I**

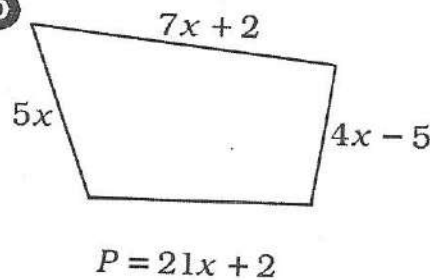


## Part 2. Find the missing side length. The perimeter, $P$ , is given.

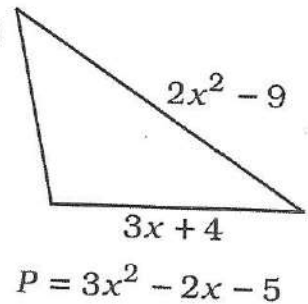
**S**



**D**

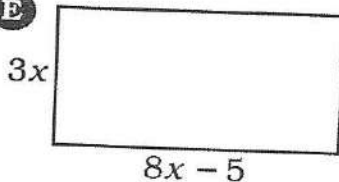


**A**

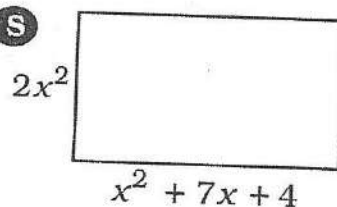


## Part 3. Find the area.

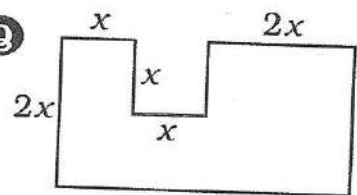
**E**



**S**

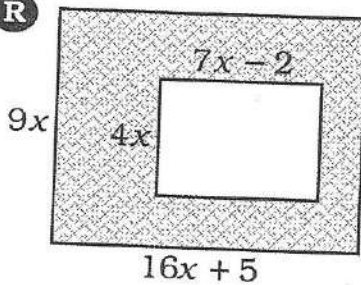


**G**

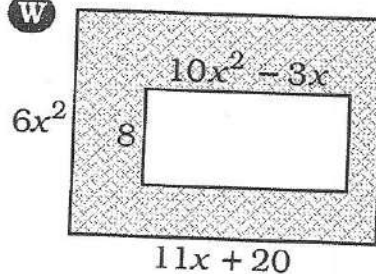


## Part 4. Find the area of the shaded region.

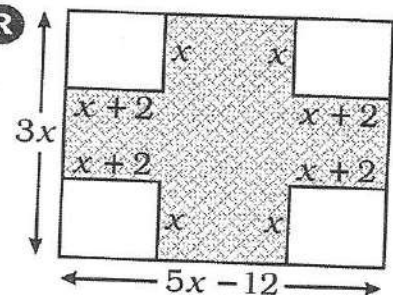
**R**



**W**



**R**



|        |          |              |            |                |           |                       |                       |               |            |               |          |                       |                 |                       |           |
|--------|----------|--------------|------------|----------------|-----------|-----------------------|-----------------------|---------------|------------|---------------|----------|-----------------------|-----------------|-----------------------|-----------|
| $7x^2$ | $4x + 7$ | $9x^2 - 40x$ | $x^2 - 5x$ | $116x^2 + 53x$ | $12x + 9$ | $2x^4 + 9x^3 + 12x^2$ | $66x^3 + 40x^2 + 24x$ | $24x^2 - 15x$ | $12x - 20$ | $11x^2 - 44x$ | $5x + 5$ | $64x^3 + 36x^2 + 30x$ | $3x^2 + 9x - 6$ | $2x^4 + 14x^3 + 8x^2$ | <b>??</b> |
|--------|----------|--------------|------------|----------------|-----------|-----------------------|-----------------------|---------------|------------|---------------|----------|-----------------------|-----------------|-----------------------|-----------|

Alg.1 Snow Packet #7 Show your work.  
**What Do You Call a Bunch of...**

1. Sheep stuck in a sauna?

9 18 18 2 4 17 9 12 3 1 12 16 17

2. Wolves not feeling well?

3 11 17 6 8 15 11 13 3 8 15

3. Salmon jammed together in a river?

5 16 6 7 14 2 18 10



Write the expression in factored form, then find your answer in the answer column below. Each time the exercise number appears in the code, write the letter of the answer in the space above it. If the answer has a , leave the space blank.

1  $3n^2 - 21n + 30$

2  $n^3 + 8n^2 + 12n$

3  $5n^2 - 10n - 40$

4  $4n^3 + 8n^2 - 60n$

5  $2n^2 + 18$

6  $2n^2 - 18$

**Answers 1-6**

A  $5(n + 2)(n - 4)$

N  $2(n + 3)^2$

I  $2(n + 3)(n - 3)$

T  $3(n - 2)(n - 5)$

K  $n(n + 3)(n + 4)$

  $4n(n - 3)(n + 5)$

H  $4n(n - 3)(n - 5)$

G  $2(n^2 + 9)$

L  $n(n + 2)(n + 6)$

P  $3(n - 1)(n - 10)$

J  $5(n - 2)(n + 4)$

7  $6y^2 + 21y + 18$

8  $5y^3 + 2y^2 - 16y$

9  $24y^3 - 56y^2 - 80y$

10  $20y^3 + 45y$

11  $20y^3 - 45y$

12  $20y^3 - 60y^2 + 45y$

**Answers 7-12**

F  $y(5y - 4)(y + 4)$

X  $5y(4y^2 + 9)$

V  $3(2y + 1)(y + 6)$

M  $5y(2y + 3)^2$

  $5y(2y + 3)(2y - 3)$

W  $8y(3y - 10)(y + 1)$

D  $3(2y + 3)(y + 2)$

Y  $5y(4y - 1)(y - 9)$

E  $5y(2y - 3)^2$

R  $8y(3y - 5)(y + 2)$

C  $y(5y - 8)(y + 2)$

13  $7h^4 + 9h^3 + 2h^2$

14  $50h^4 - 32h^2$

15  $36h^3 - 60h^2 - 144h$

16  $30h^4 + 25h^3 - 5h^2$

17  $98h^5 - 2h$

18  $75h^4 + 60h^3 + 12h^2$

**Answers 13-18**

U  $3h^2(5h + 1)(h + 4)$

R  $5h^2(6h - 1)(h + 1)$

P  $h^2(7h + 2)(h + 1)$

H  $2h^2(5h - 4)^2$

K  $12h(3h + 4)(h - 3)$

O  $3h^2(5h + 2)^2$

B  $5h^2(3h - 1)(2h + 1)$

  $2h^2(5h + 4)(5h - 4)$

F  $h^2(7h + 1)(h + 2)$

S  $2h(7h^2 + 1)(7h^2 - 1)$

N  $12h(3h + 2)(h - 6)$

# How Did the Absent-Minded Professor Burn His Ear?

Simplify the expression. Write the letter of the exercise in the box that contains the number of the answer.



**E**  $n^2 \cdot n^5$

**N**  $(n^2)^5$

**H**  $(n^{-2})^5$

**A**  $(n^9)^4 n^3$

**O**  $(n^2)(n^3)^{-2}$

**I**  $(n^4)^{-3}(n^4)^{-1}$

**E**  $(n^{10})^{10}(n^{-8})^3$

**I**  $(x^5 y^4)^2$

**N**  $(10xy^2)^3(x^2)$

**H**  $(-x^3 y^8)^3$

**E**  $(x^2 y)^5(x^2 y^5)$

**G**  $(9x^3 y^4)^2(xy)^{-6}$

**T**  $(3x^{-2})^4(x^2 y^4)^3$

**W**  $(-5y^{-5})^3(-x^4 y)^2$

Answers • Part 1

**29**  $n^{76}$  **31**  $n^{42}$

**20**  $n^{81}$  **18**  $n^7$

**33**  $n^{10}$  **5**  $n^{39}$

**27**  $\frac{1}{n^4}$  **8**  $\frac{1}{n^{16}}$

**4**  $\frac{1}{n^{12}}$  **22**  $\frac{1}{n^{10}}$

Answers • Part 3

**14**  $81y^2$  **3**  $1000x^6 y^2$

**12**  $x^{10} y^8$  **26**  $-x^9 y^{24}$

**2**  $x^{12} y^{10}$  **19**  $1000x^5 y^6$

**16**  $\frac{81y^7}{x^4}$  **4**  $\frac{125x^8}{y^{13}}$

**21**  $\frac{81y^{12}}{x^2}$  **25**  $\frac{125x^9}{y^{12}}$

**N**  $(7d)^2$

**H**  $(4d^2)^3$

**S**  $(-4d^2)^3$

**A**  $(4d^2)^{-3}$

**O**  $(-5d)^2(d^3)^2$

**E**  $8(d^2)^2(-2d)^3$

**H**  $(3d^5)^{-4}(d^{-1})^9$

**N**  $(-6m^7 t^4)^2$

**R**  $(3m^2 t)^2(3m^2 t^2)$

**W**  $(-2mt)^3(-2mt^3)$

**G**  $-m^5 t^2(15mt^5)^2$

**N**  $(4mt^{-3})^2(-4m^{-3}t)^2$

**P**  $(5mt)^2 + 5m^2 t^2$

**R**  $(mt^4)^{-1}(mt^4)$

Answers • Part 2

**23**  $-64d^7$  **17**  $64d^6$

**6**  $-64d^6$  **30**  $25d^{10}$

**13**  $49d^2$  **10**  $25d^8$

**9**  $\frac{1}{81d^{18}}$  **1**  $\frac{1}{81d^{29}}$

**32**  $\frac{1}{64d^6}$  **12**  $\frac{64}{d^9}$

Answers • Part 4

**25**  $30m^2 t^2$  **34**  $-225m^7 t^{12}$

**16**  $16m^4 t^6$  **24**  $-225m^6 t^{10}$

**9** **1** **11**  $36m^{14} t^8$

**31**  $27m^6 t^4$  **7**  $27m^5 t^6$

**15**  $\frac{256m^2}{t^3}$  **28**  $\frac{256}{m^4 t^4}$

|   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

Alg. 1 Snow Packet #8

Show your work.

The Distance Formula – Step-by-Step

Name: Examples

Place letters and coordinates here:

A (6, -7)      B (3, -2)  
 $x_1$   $y_1$        $x_2$   $y_2$

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$d = \sqrt{(\boxed{3} - \boxed{6})^2 + (\boxed{-2} - \boxed{-7})^2}$$

$$d = \sqrt{(\boxed{-3})^2 + (\boxed{5})^2}$$

$$d = \sqrt{\boxed{9} + \boxed{25}}$$

$$d = \sqrt{34}$$

Answer:  $\sqrt{34}$  Simplest radical  
 5.8 rounded decimal

Place letters and coordinates here:

C (-5, -6)      D (-1, -8)  
 $x_1$   $y_1$        $x_2$   $y_2$

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$d = \sqrt{(\boxed{-1} - \boxed{-5})^2 + (\boxed{-8} - \boxed{-6})^2}$$

$$d = \sqrt{(\boxed{4})^2 + (\boxed{-2})^2}$$

$$d = \sqrt{\boxed{16} + \boxed{4}}$$

$$d = \sqrt{20}$$

$$\frac{\sqrt{4 \cdot 5}}{2\sqrt{5}}$$

Answer:  $2\sqrt{5}$  Simplest radical  
 4.5 rounded decimal

Place letters and coordinates here:

E (8, 4)      F (2, -4)  
 $x_1$   $y_1$        $x_2$   $y_2$

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$d = \sqrt{(\boxed{2} - \boxed{8})^2 + (\boxed{-4} - \boxed{4})^2}$$

$$d = \sqrt{(\boxed{-6})^2 + (\boxed{-8})^2}$$

$$d = \sqrt{\boxed{36} + \boxed{64}}$$

$$d = \sqrt{100}$$

$$10$$

Answer: 10

Place letters and coordinates here:

G (-5, 0)      H (2, 7)  
 $x_1$   $y_1$        $x_2$   $y_2$

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$d = \sqrt{(\boxed{2} - \boxed{-5})^2 + (\boxed{7} - \boxed{0})^2}$$

$$d = \sqrt{(\boxed{7})^2 + (\boxed{7})^2}$$

$$d = \sqrt{\boxed{49} + \boxed{49}}$$

$$d = \sqrt{98}$$

$$\frac{\sqrt{49 \cdot 2}}{7\sqrt{2}}$$

Answer:  $7\sqrt{2}$  Simplest radical  
 9.9 rounded decimal

# Alg.1 Snow Packet #9 Show your work.

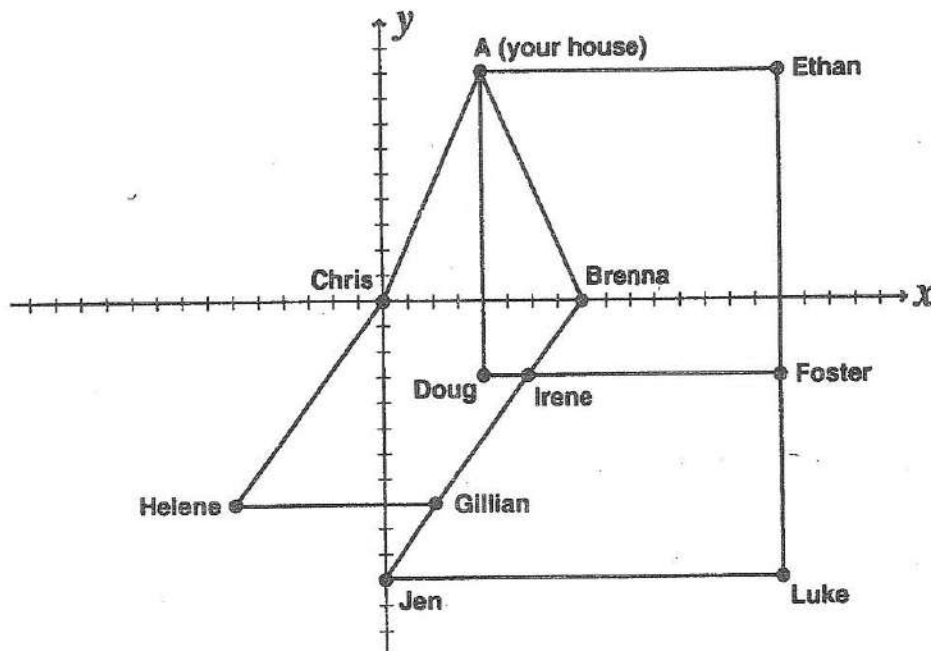
Name \_\_\_\_\_

## House Hopping

**Distance Formula:**  $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$  **Midpoint Formula:**  $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

Find out how many miles you travel when you visit your friends by completing the problems below. The graph shows your house (point A) and your friends' houses. Each unit equals one mile. Round decimals to the nearest tenth.

1. Your house to Brenna's \_\_\_\_\_
2. Chris's house to Helene's \_\_\_\_\_
3. Brenna's house to Gillian's \_\_\_\_\_
4. Your house to Chris's \_\_\_\_\_
5. Chris's house to Brenna's \_\_\_\_\_
6. Helene's house to Gillian's \_\_\_\_\_
7. Your house to Ethan's \_\_\_\_\_
8. Doug's house to Foster's \_\_\_\_\_



9. Find the total distance traveled if you left your house and went to Ethan's, then to Foster's, then to Doug's, and home again. \_\_\_\_\_
10. This is the perimeter of what shape? \_\_\_\_\_

Write the coordinates of the midpoint between the houses below.

11. Jen's house to Luke's \_\_\_\_\_
12. Your house to Doug's \_\_\_\_\_

## Why Is the Library Not Adding Any More Fairy Tales?

Write the exercise letter in the box above the answer at the bottom of the page.

Find the distance between the two given points. If necessary, round to the nearest tenth.

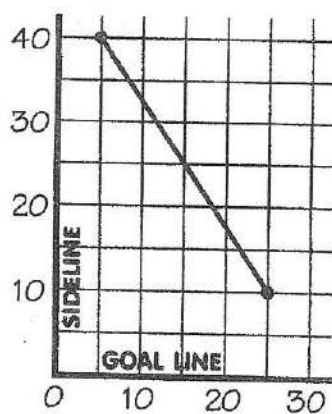
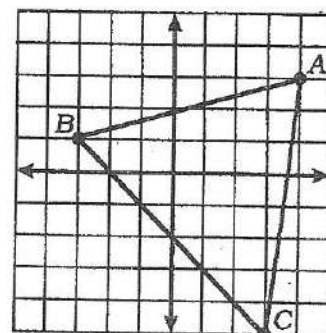
- T  $(-1, 2), (7, 8)$     E  $(3, -4), (-2, 5)$     A  $(-7, 0), (-4, 12)$     N  $(1, -5), (-9, -9)$

Find the midpoint between the two given points.

- S  $(2, 6), (3, 10)$     F  $(15, -1), (9, -5)$     T  $(7, -2), (-10, -8)$     E  $(-3, 0), (-11, 9)$

Use the grid to the right to find the following:

- A AB.    O Midpoint of  $\overline{AB}$ .  
 E AC.    C Midpoint of  $\overline{AC}$ .  
 O BC.    Y Midpoint of  $\overline{BC}$ .  
 H Perimeter of  $\triangle ABC$ .

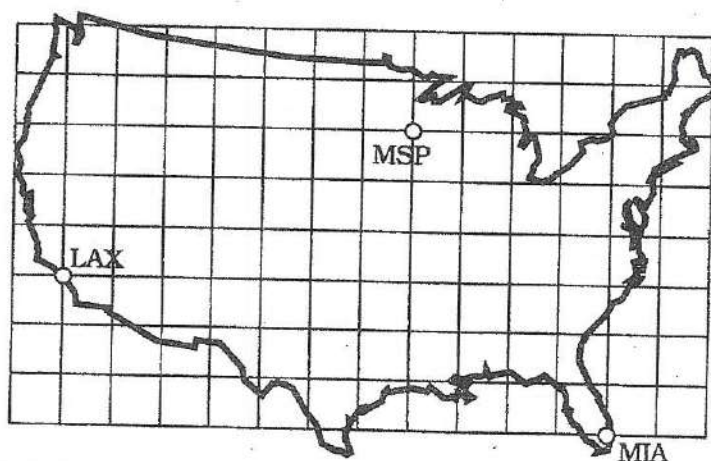


- F The quarterback throws a pass from a position 10 yd from a goal line and 25 yd from a sideline. A receiver catches the pass at a position 40 yd from the same goal line and 5 yd from the same sideline. About how long was the pass?

- U On another play, the quarterback throws a pass from a position 12 yd from a goal line and 20 yards from a sideline. A receiver catches the pass at a position 27 yd from the same goal line and 15 yards from the same sideline. About how long was the pass?

A grid has been superimposed over a map of the United States. Each side of a square represents 200 mi. The airports in Los Angeles (LAX), Minneapolis (MSP), and Miami (MIA) are marked. Use the grid to estimate these air distances:

- R LAX to MSP  
 P MSP to MIA  
 L MIA to LAX



|              |      |      |           |             |         |     |      |       |            |       |    |      |     |            |         |             |         |       |     |            |         |      |             |     |
|--------------|------|------|-----------|-------------|---------|-----|------|-------|------------|-------|----|------|-----|------------|---------|-------------|---------|-------|-----|------------|---------|------|-------------|-----|
| $(-1.5, -5)$ | 23.9 | 10.3 | $(0, -2)$ | $(-1, 2.5)$ | 1523 mi | 7.3 | 10.8 | 21 yd | $(0.5, 2)$ | 16 yd | 10 | 24.6 | 8.5 | $(12, -3)$ | 1943 mi | $(-7, 4.5)$ | 2280 mi | 36 yd | 9.2 | $(2.5, 8)$ | 1442 mi | 12.4 | $(3.5, -1)$ | 8.1 |
|--------------|------|------|-----------|-------------|---------|-----|------|-------|------------|-------|----|------|-----|------------|---------|-------------|---------|-------|-----|------------|---------|------|-------------|-----|