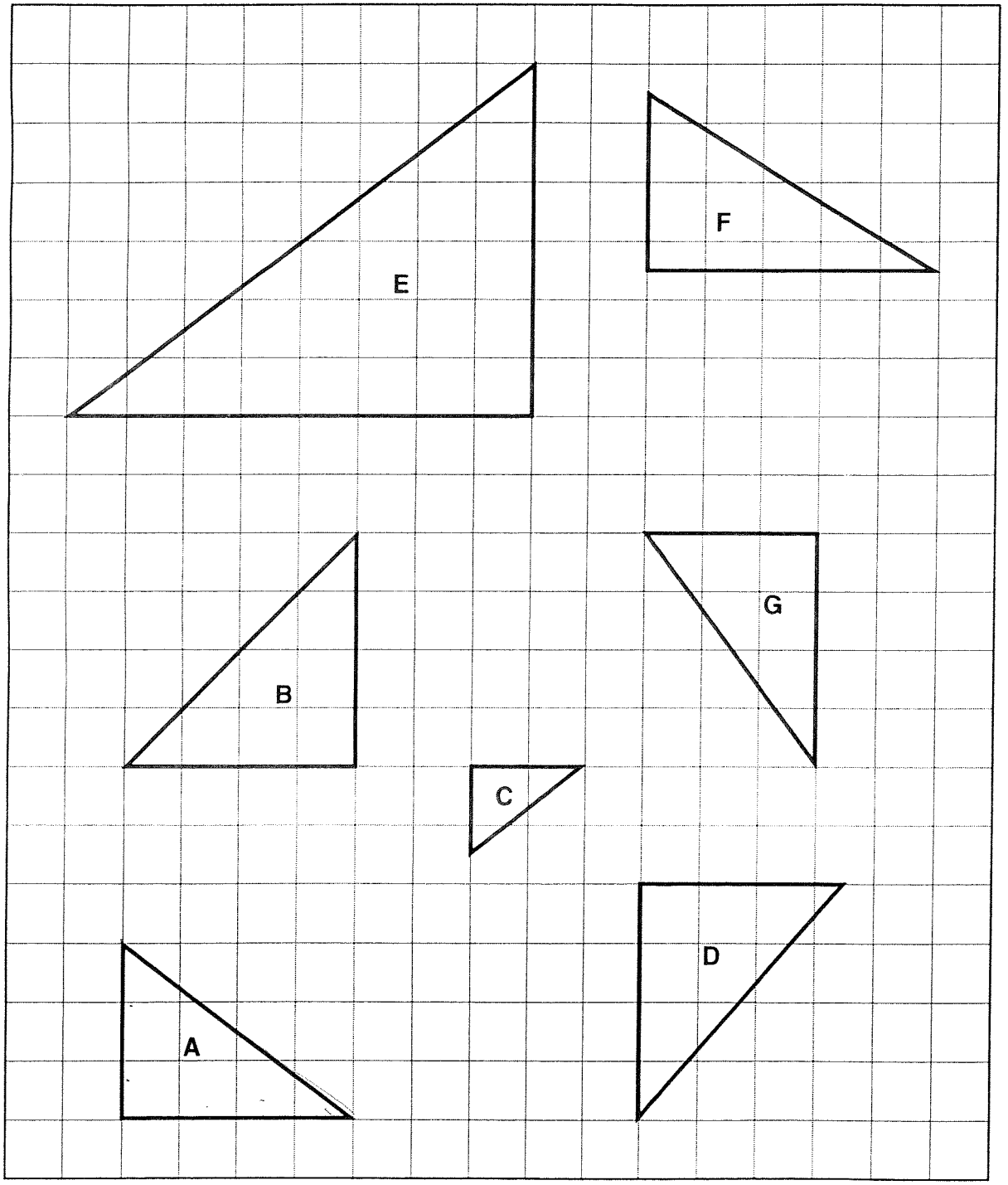
Triangles

This problem gives you the chance to:

- reason about similar figures and scale factor

Here are some right triangles.



T1

1. Which of the triangles on the opposite page is congruent to triangle A? G ✓ 1
Explain your reasoning.

Both have sides of 3 and 4 with a 90° ✓ 1
angle between

2. Which of the triangles on the opposite page are similar to triangle A? C ✓ + E ✓ 1
Explain how you decided.

The sides of C are all half of A lengths 1
The sides of E are twice of A ~~lengths~~ ✓

3. If triangle A is enlarged by a scale factor of 3, what will be the area of the new triangle? 1
Show your work.

54 squares ✓

It will be ×3 bigger across 1
and 3× bigger up

A is $\frac{1}{2} \times 4 \times 3 = 6$ ✓ 1

$6 \times 3 \times 3$ is 6×9 ✓ $= 54$

8

8

T2

1. Which of the triangles on the opposite page is congruent to triangle A? G ✓ 1
Explain your reasoning.

A + G are 3 by 4 by 5 ✓ 1

2. Which of the triangles on the opposite page are similar to triangle A? C, E ✓✓ 1
Explain how you decided.

C is half A on its sides ✓ 1

F is x2 1

3. If triangle A is enlarged by a scale factor of 3, what will be the area of the new triangle?
Show your work.

18 x 0

A is $\frac{1}{2} \times 4 \times 3 = 6$ ✓ 1

$6 \times 3 = 18$ x 0

8

6

T3

1. Which of the triangles on the opposite page is congruent to triangle A? G ✓ 1
Explain your reasoning.

because it has same area ✗ 0

2. Which of the triangles on the opposite page are similar to triangle A? They ✗ 0
Explain how you decided.

all are because they are right triangles

0

3. If triangle A is enlarged by a scale factor of 3, what will be the area of the new triangle?
Show your work.

18 units ✗ 0

$A = \frac{1}{2}bh$
$A = \frac{1}{2} \times 4 \times 3$
$A = \frac{1}{2} \times \frac{4}{1} \times \frac{3}{1}$ ✓
$A = 6$ units
$\times 3$ ✗
18 units

1

0

8

2

T4

1. Which of the triangles on the opposite page is congruent to triangle A? G ✓ 1
Explain your reasoning.

b/c they have the same sides & area ✓ 1

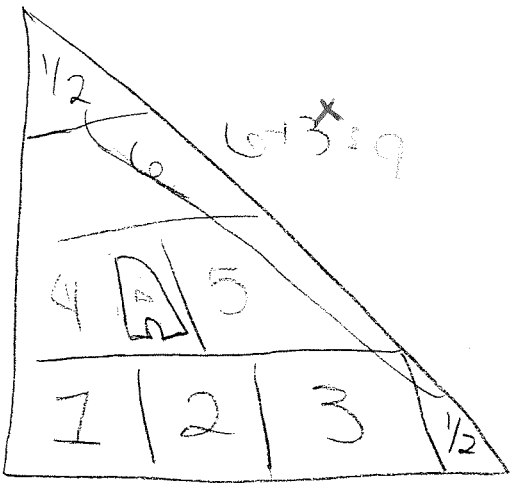
2. Which of the triangles on the opposite page are similar to triangle A? C ✓ 1
Explain how you decided.

it's just smaller × 0

0

3. If triangle A is enlarged by a scale factor of 3, what will be the area of the new triangle?
Show your work.

9 × 0



0

0

8

3

T5

1. Which of the triangles on the opposite page is congruent to triangle A? G ✓ 1
Explain your reasoning.

They are both right triangles with sides 3 and 4 ✓ 1

2. Which of the triangles on the opposite page are similar to triangle A? C ✓ & E ✓ 1
Explain how you decided.

All right triangles but C is all half the size of A in length and E is ✓ 1
twice its size

3. If triangle A is enlarged by a scale factor of 3, what will be the area of the new triangle?
Show your work.

54 ✓ 1

Area of A is 6 ✓ 1

0

7

S1

1. Which of the triangles on the opposite page is congruent to triangle A? G ✓ 1
Explain your reasoning.

They are the same shapes with the same sides 3, 4 and 5 (the special triangle) ✓ 1

2. Which of the triangles on the opposite page are similar to triangle A? C ✓ and E ✓ 1
Explain how you decided.

C is 2 and 1½ A is 4 and 3, twice as big 1
E is 8 and 6 twice as big as A ✓

3. If triangle A is enlarged by a scale factor of 3, what will be the area of the new triangle?
Show your work.

54 ✓ 1

It will be $4 \times 3 = 12$ ✓ 1
by $3 \times 3 = 9$

1

Area $= \frac{1}{2} \times 12 \times 9 = 6 \times 9$ ✓ $= 54$

8

8

S2

1. Which of the triangles on the opposite page is congruent to triangle A? G ✓ 1
Explain your reasoning.

It has sides 3 and 4 like A ✓ 1

0

2. Which of the triangles on the opposite page are similar to triangle A? C ✓ E ✓ 1
Explain how you decided.

The sides for C are 2, 1½ that's A ÷ 2 1

" " " E " 8, 6 " A × 2 ✓ 1

3. If triangle A is enlarged by a scale factor of 3, what will be the area of the new triangle?
Show your work.

19½ x 0

Area of A is 6½ x 0

6½ × 3 = 19½ x 0

8

4

S3

1. Which of the triangles on the opposite page is congruent to triangle A? g ✓ 1
Explain your reasoning.

a and g fit over each other exactly ✓ 1

2. Which of the triangles on the opposite page are similar to triangle A? e ✓ 1
Explain how you decided.

the sides of e are double the sides of a ✓ 1

3. If triangle A is enlarged by a scale factor of 3, what will be the area of the new triangle?
Show your work.

56 ✗ 0

$\frac{1}{2} \times 4 \times 3 \times 9 =$ ✓ ✓ 1

1

S4

1. Which of the triangles on the opposite page is congruent to triangle A? ΔG ✓ 1
Explain your reasoning.

if you could fold Δa and it would go on ΔG ✓ 1

2. Which of the triangles on the opposite page are similar to triangle A? ΔF ✗ 0
Explain how you decided.

it is the same shape, long, and both the same ✗ 0

3. If triangle A is enlarged by a scale factor of 3, what will be the area of the new triangle?
Show your work.

✓
x3x
18

A=18·x 0

1

0

S5

1. Which of the triangles on the opposite page is congruent to triangle A? g ✓ 1
Explain your reasoning. 0

it is just the same size as a

2. Which of the triangles on the opposite page are similar to triangle A? b ✗ and d ✗ 0
Explain how you decided. 0

they have one side of 4 like a but are a bit taller ✗ 0

3. If triangle A is enlarged by a scale factor of 3, what will be the area of the new triangle?
Show your work. 54 ✓ 1

It will be $4 \times 3 = 12$ base ✓ 1

$3 \times 3 = 9$ high

$\frac{1}{2} \times 12 \times 9 = 54$ ✓ 1

8

4

Triangles

S6

This problem gives you the chance to:

- reason about similar figures and scale factor

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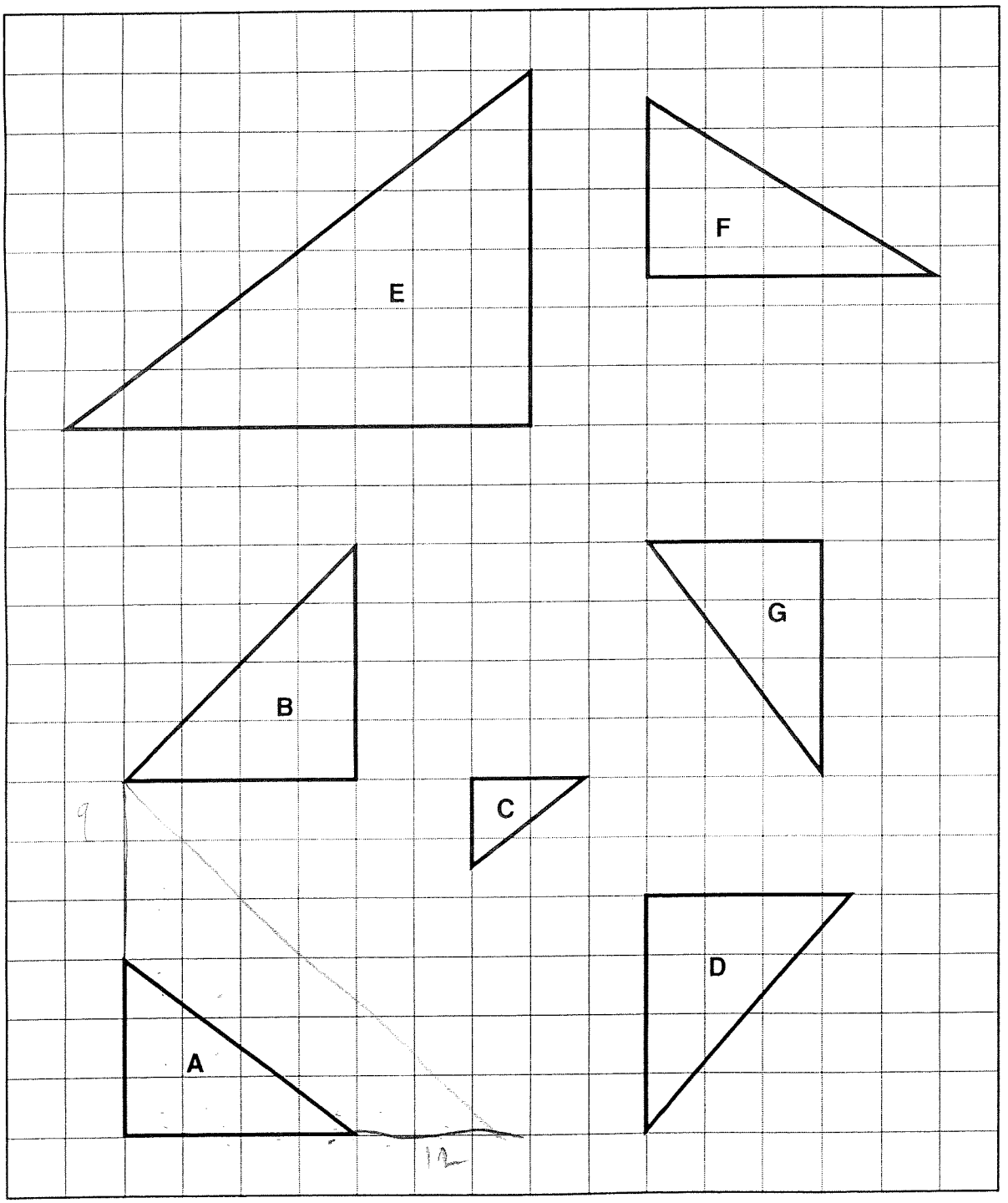

1. Which of the triangles on the opposite page is congruent to triangle A? G ✓ 1 S6
Explain your reasoning.

G takes up the same numbers of units as A ✗ 0

2. Which of the triangles on the opposite page are similar to triangle A? F ✗ 0
Explain how you decided.

F is facing the same direction, ✗ 0

3. If triangle A is enlarged by a scale factor of 3, what will be the area of the new triangle? 1
Show your work.

54 ✓ units

$A = \frac{1}{2}bh$ 1

$A = \frac{1}{2} \times \frac{12^{6}}{1} \times \frac{9}{1} = \frac{54}{1} = 54$ ✓ 1

1

S7

1. Which of the triangles on the opposite page is congruent to triangle A? G ✓ 1
Explain your reasoning.

It is same size and shape as A just ✓ 1
turned round

2. Which of the triangles on the opposite page are similar to triangle A? C ✓ and E ✓ 1
Explain how you decided. 1

As sides shared by 2 give C
As sides times by 2 give E ✓ 1

3. If triangle A is enlarged by a scale factor of 3, what will be the area of the new triangle?
Show your work.

530 ×

As areas $\frac{1}{2} \times 4 \times 3 = 6$ ✓ 1

it will be x3 up and x3 across 1

$6 \times 3 \times 3 = 53$ ✓

8

7

S8

1. Which of the triangles on the opposite page is congruent to triangle A? F ✓ 1
Explain your reasoning.

A and F have same sides of 3 and 4 and ✓ 1
same shape

2. Which of the triangles on the opposite page are similar to triangle A? C ✓, E ✓ 1
Explain how you decided. 1

C is half the size of A, it is 4 ÷ 2 = 2 and 3 ÷ 2 = 1½ ✓ 1
E is x 2 of A

3. If triangle A is enlarged by a scale factor of 3, what will be the area of the new triangle?
Show your work.

18 x 0 squares

A has 6 squares ✓ 1

6 x 3 is 18 squares ✗ 0

8

6

S9

1. Which of the triangles on the opposite page is congruent to triangle A? triangle G ✓ 1
Explain your reasoning.

They are the same size, and If you were to fold one over the other they would go over each other. ✓ 1

2. Which of the triangles on the opposite page are similar to triangle A? triangle F ✗ 0
Explain how you decided.

They are both going the same directions and they both on the same angle. ✗ 0

3. If triangle A is enlarged by a scale factor of 3, what will be the area of the new triangle?
Show your work.

don't know ✗ 0

2

S10

1. Which of the triangles on the opposite page is congruent to triangle A? G ✓ 1
Explain your reasoning.

They have same areas ✗ 0

2. Which of the triangles on the opposite page are similar to triangle A? C, E ✓ 1
Explain how you decided.

C is half as long and high as A 1
E is ×2 ✓

3. If triangle A is enlarged by a scale factor of 3, what will be the area of the new triangle? 54 ✓ 1
Show your work.

6 ✓ × 9 ✓ = 54 1
1

8

7