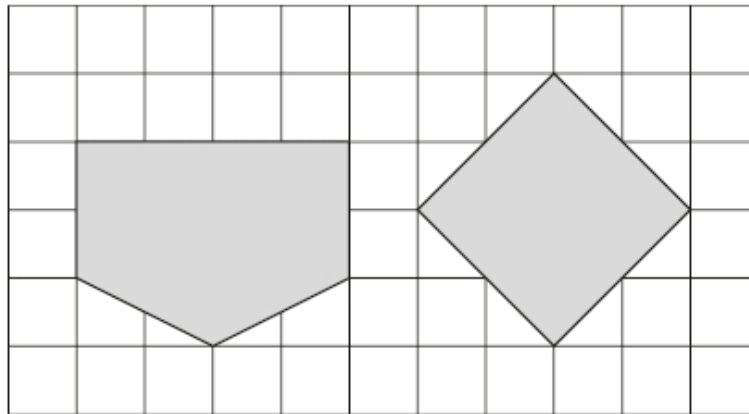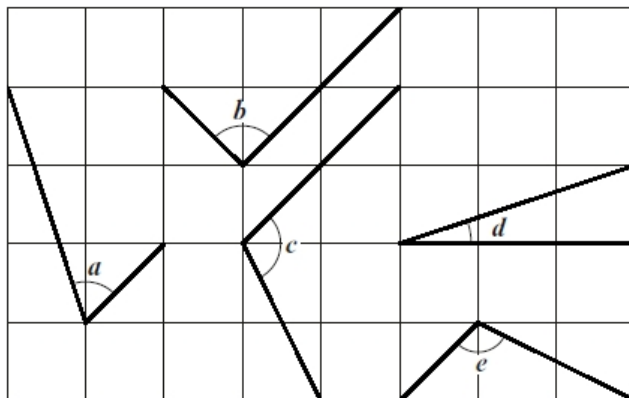**1.**

Angle reasoning questions

Here are two shapes on a square grid.

For each shape, write how many **right angles** it has.

2.

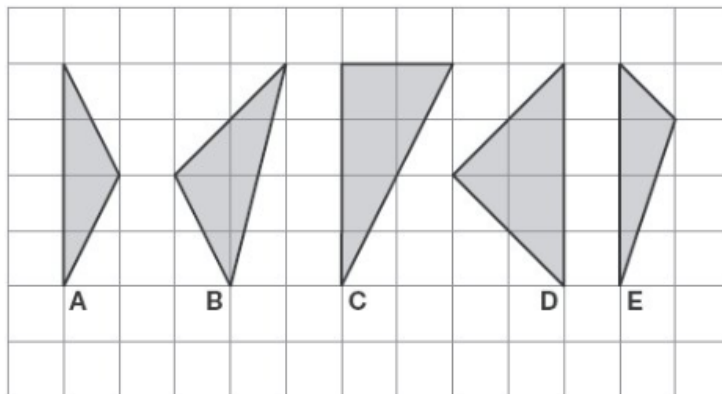Here are five angles marked on a grid of squares.

Write the letters of the angles that are **obtuse**.

_____

Write the letters of the angles that are **acute**.

_____

3.

Here are five shaded triangles on a square grid.

Write the letter of each triangle that has a **right angle**.

Write the letter of each triangle that has **two equal sides**.

4.

Complete the table.

shape	number of **right** angles

Answer:

1.

2 **AND** 4

Answer:

2.

(a)   c **AND** e

Letters may be given in either order.

(b)   a **AND** d

Letters may be given in either order.

Answer:

3.

(a)   C **AND** D

Letters may be given in either order.
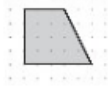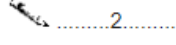
(b)   A **AND** D

Letters may be given in either order.

Answer:

4.

Table completed as shown:

shape	number of right angles
	.........3.........
	.........2.........

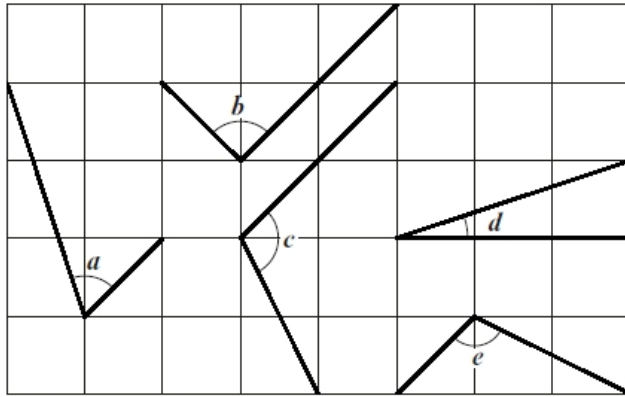**Both** numbers must be correct for the award of the mark.

Angle reasoning questions

1.

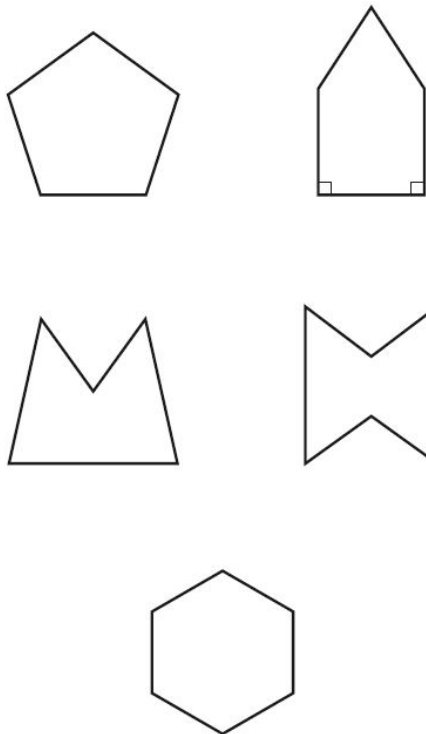Here are five angles marked on a grid of squares.

Write the letters of the angles that are **obtuse**.

_____

Write the letters of the angles that are **acute**.

_____

2.

Circle the **pentagon** with exactly **four acute angles.**

3.

Here are five angles marked on a grid of squares.
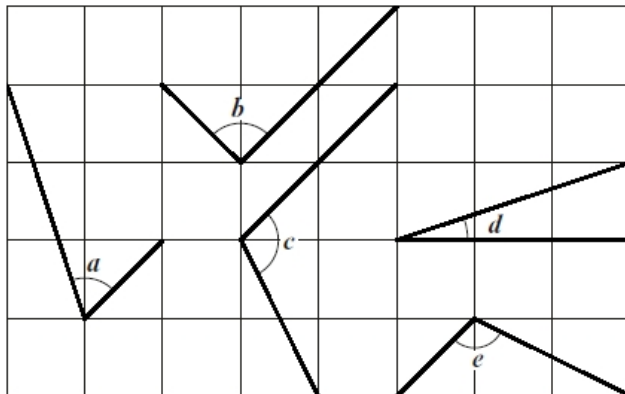
Write the letters of the angles that are **obtuse**.

_____

Write the letters of the angles that are **acute**.

_____

4.

Here is a shape on a grid.

For each statement, put a tick (✓) if it is true.
Put a cross (✗) if it is not true.

The shape is a quadrilateral.	☐
The shape has 2 lines of symmetry.	☐
The shape is a parallelogram.	☐
The shape has one right angle.	☐

5.

This diagram shows a square with dots at the vertices and at the middle of each side.
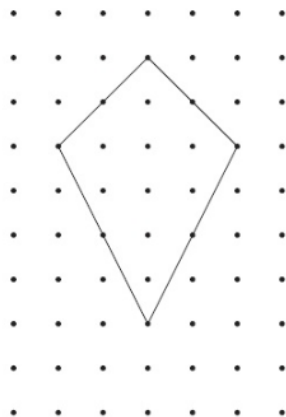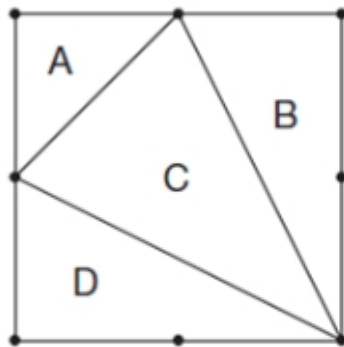
The square is divided into four triangles, **A**, **B**, **C** and **D**.

Write the letters of all the triangles that have a **right angle**.

_____

Write the letters of all the triangles that have **two equal sides**.

_____

Answer:

1.

    (a)   *c* **AND** *e*

                Letters may be given in either order.

    (b)   *a* **AND** *d*

                Letters may be given in either order.

Answer:

2.

The correct shape circled as shown:
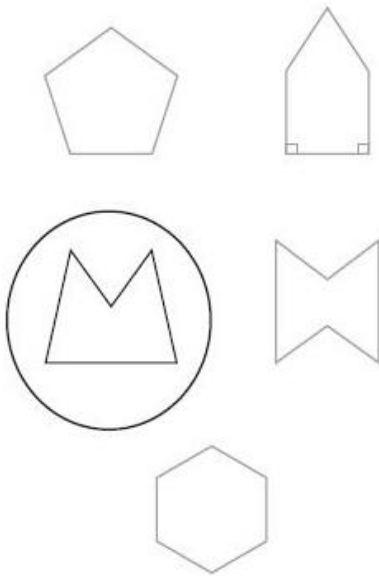
Answer:

3.

    (a)   *c* **AND** *e*

                Letters may be given in either order.

    (b)   *a* **AND** *d*

                Letters may be given in either order.

Answer:

4.

Award **TWO** marks for all four boxes ticked or crossed correctly as shown:

☑
☒
☒
☑

If the answer is incorrect, award **ONE** mark for three boxes ticked or crossed correctly.

Accept alternative unambiguous indications eg Y or N.
*For **TWO** marks accept:*

☑
☐
☐
☑

Answer:

5.

(a)   A **AND** B **AND** D

Letters may be given in any order.

(b)   A **AND** C

Letters may be given in any order.

Angle reasoning questions

1.

A shaded **isosceles** triangle is drawn inside a rectangle.

Not to scale
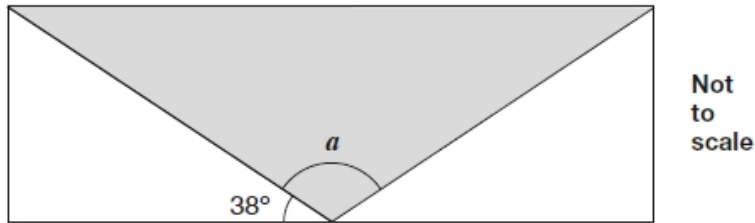
Calculate the size of angle **a**.

Show your method

2 marks

2.

Kirsty says,

When you double the size of an acute angle, you always get an obtuse angle.

Explain why Kirsty is **not** correct.
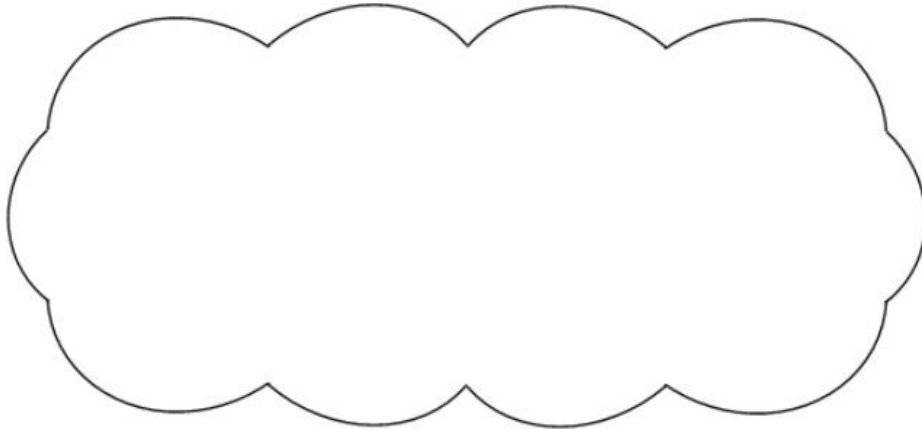
3.

Calculate the size of angles **a** and **b** in this diagram.

Not to scale

160°   **a**

b

$a = $ ____°

$b = $ ____°

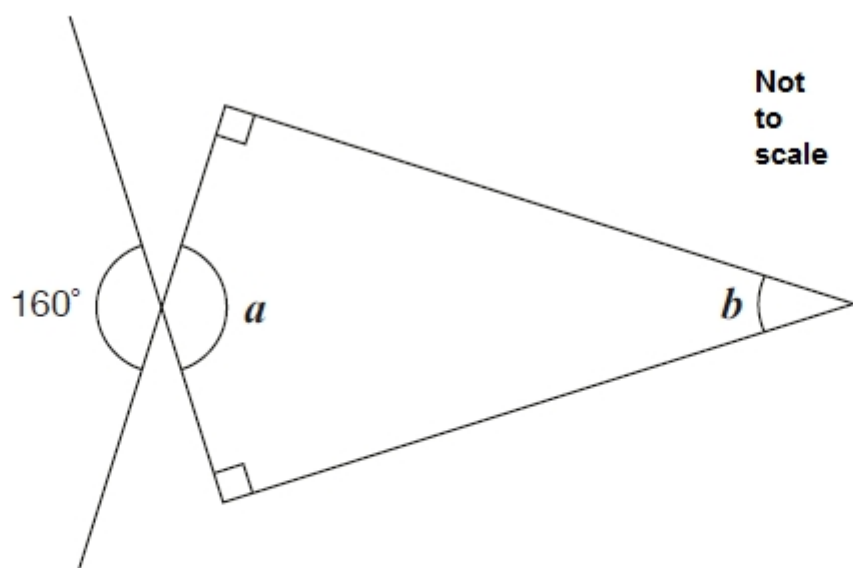**4.**

The diagram shows three **identical** isosceles triangles.

Not to
scale
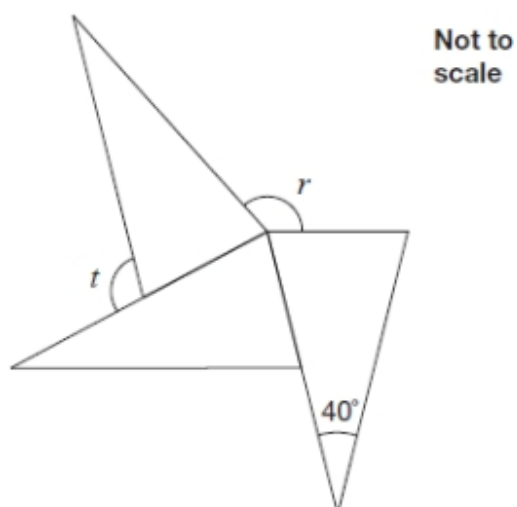
What are the sizes of angles r and t?

Show
your
method

$r =$ °

$t =$ °

5.

The diagram shows an isosceles triangle and a square on a straight line.

Not to scale
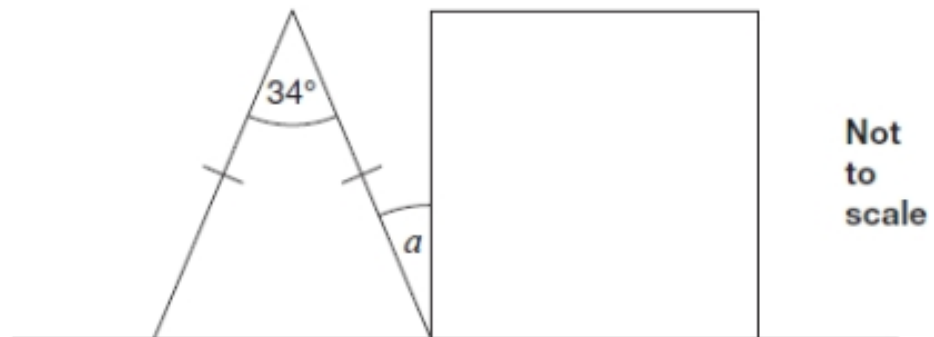
Calculate angle α.

Answer:

1.

Award **TWO** marks for the correct answer of 104°.

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g:

*   180 − 38 − 38 = a

    *Answer need not be obtained for the award of **ONE** mark.*

Up to 2

Answer:

2.

An explanation that includes a correct counter example, e.g.

- When you double 10° it is not obtuse
- 2 × 27° = 54°
- Double 45° is a right angle not obtuse

OR

An explanation that demonstrates where the statement in the question is not correct, e.g.
- If the acute angle is less than 45° then doubling it will be less than 90°, so it won't be obtuse (more than 90°).

Do not accept vague or incomplete explanations, e.g.
- *Sometimes it will be acute*
- *Some acute angles are half an obtuse angle, but not all*
- *When you double an acute angle, you get a right angle*

Do not accept explanations which include incorrect mathematics or incorrect information that is relevant to the explanation, e.g.
- *20°C × 2 = 40°C*
- *20% × 2 = 40%*

Answer:

3.

    (a)   160

    (b)   20

If the answers to a and b are incorrect, award **ONE** *mark if a + b = 180° unless b is between 33° and 37° inclusive, or 90°.*

Answer:

4.

$r = 150$ **and** $t = 110$

Values must be unambiguously associated with the correct letter for the award of 2m or 1m

Answer:

5.

17

! Answer written on diagram
Accept providing there is no ambiguity

or

73° seen (*one of the other angles in the isosceles triangle*)

OR

Shows or implies a complete correct method, eg:

- 180 − 34 = 144 (*error*)

  144 ÷ 2 = 72

  90 − 72 = 28 (*error*)

Arithmetic

Year 5 arithmetic:

Choose an arithmetic test to complete. The practice should take you thirty minutes to complete.

1	710 + 1 =		1 mark
2	20 + 4 + 4 =		1 mark
3	42 + 10 =		1 mark
4	600 − 1 =		1 mark
5	134 + 61 =		1 mark
6	231 − 100 =		1 mark
7	7 × 3 =		1 mark

8	$? \div 2 = 5$		1 mark
9	$\dfrac{1}{7} + \dfrac{4}{7} =$		1 mark
10	$\begin{array}{r} 721 \\ + 192 \\ \hline \end{array}$		1 mark
11	$973 - 19 =$		1 mark
12	$36 \div 4 =$		1 mark
13	$\dfrac{1}{5}$ of $35 =$		1 mark
14	$34 + ? = 72$		1 mark

15	$8 \times ? = 56$		1 mark
16	$500 - ? = 375$		1 mark
17	$16 \times 3 =$		1 mark
18	$\begin{array}{r} 235 \\ -\ 126 \\ \hline \end{array}$		1 mark
19	$14 \times 8 =$		1 mark
20	$\frac{2}{3}$ of $15 =$		1 mark

Mark scheme

1.	711	[1]	11.	954	[1]
2.	28	[1]	12.	9	[1]
3.	52	[1]	13.	7	[1]
4.	599	[1]	14.	38	[1]
5.	195	[1]	15.	7	[1]
6.	131	[1]	16.	125	[1]
7.	21	[1]	17.	48	[1]
8.	10	[1]	18.	109	[1]
9.	$\frac{5}{7}$	[1]	19.	112	[1]
			20.	10	[1]
10.	913	[1]			

1	12 + 4 + 4 =	1 mark
2	43 × 0 =	1 mark
3	109 − 10 =	1 mark
4	6 × 4 =	1 mark
5	80 ÷ 1 =	1 mark
6	499 + 50 =	1 mark
7	354 + 263	1 mark

8	$43 \times 5 =$		1 mark
9	$\dfrac{3}{7} + \dfrac{3}{7} =$		1 mark
10	$72 \div 8 =$		1 mark
11	$4916 + 358 =$		1 mark
12	$\begin{array}{r} 945 \\ -\ 178 \\ \hline \end{array}$		1 mark
13	$2 \times 5 \times 3 =$		1 mark
14	$36.05 \times 10 =$		1 mark

15	$0.03 = ?\%$		1 mark
16	$2.9 + 5.3 =$		1 mark
17	$10,348 - 458 =$		1 mark
18	$\frac{2}{5}$ of $30 =$		1 mark
19	$20 \times 40 =$		1 mark
20	$5316 \div 6 =$		1 mark
21	$\frac{1}{3}$ of $507 =$		1 mark

22	$467.1 \div 1000 =$		1 mark
23	$\begin{array}{r} 28 \\ \times \quad 53 \\ \hline \end{array}$		2 marks
24	$31.8 \times 4 =$		1 mark
25	$2^3 + 2^2 =$		1 mark
26	$1\frac{1}{3} \times 2 =$		1 mark
27	$0.2 = \frac{?}{10}$		1 mark
28	$26.8 - 6.12 =$		1 mark
29	$\frac{5}{6} - \frac{2}{3} =$		1 mark

Mark scheme

1.	20	[1]
2.	0	[1]
3.	99	[1]
4.	24	[1]
5.	80	[1]
6.	549	[1]
7.	617	[1]
8.	215	[1]
9.	$\frac{6}{7}$	[1]
10.	9	[1]
11.	5274	[1]
12.	767	[1]
13.	30	[1]
14.	360.5	[1]
15.	3%	[1]
16.	8.2	[1]
17.	9,890	[1]
18.	12	[1]

19.	800	[1]
20.	886	[1]
21.	169	[1]
22.	0.4671	[1]
23.	For 2 marks: 1484	[2]

*Award only 1 mark if there is **either** one error in the multiplication steps, then added correctly, **or** no error in the multiplication steps but an error in the addition step.*

24.	127.2	[1]
25.	12	[1]
26.	$2\frac{2}{3}$ or equivalent e.g. $\frac{8}{3}$	[1]
27.	$\frac{2}{10}$	[1]
28.	20.68	[1]
29.	$\frac{1}{6}$	[1]

1	$\dfrac{5}{11} + \dfrac{7}{11} =$		1 mark
2	29 125 + 41 827		1 mark
3	368 701 + 1000 + 1000 =		1 mark
4	9999 + 100 =		1 mark
5	370 000 + 41 000 =		1 mark
6	$\dfrac{1}{5} \times 4 =$		1 mark
7	28 088 + 5253 =		1 mark

8	$23\ 005 - ? = 21\ 006$		1 mark

9	$980\ 000 - 450\ 000 =$		1 mark

10	$\begin{array}{r} 36\ 342 \\ -\quad 27\ 838 \\ \hline \end{array}$		1 mark

11	$1^2 + 2^2 + 4^2 =$		1 mark

12	$330 \div 3 =$		1 mark

13	$123\ 502 - 98\ 624 =$		1 mark

14	$6 \times 120 =$		1 mark

15	$4200 \div 70 =$		1 mark
16	$\dfrac{5}{8} \times 2 =$		1 mark
17	$9^2 - 3^3 =$		1 mark
18	$\begin{array}{r} 3216 \\ \times \quad 9 \\ \hline \end{array}$		1 mark
19	$60 \times 40 =$		1 mark
20	$\dfrac{2}{3} + \dfrac{1}{12} =$		1 mark
21	$50.27 - 3.905 =$		1 mark

22	$\begin{array}{r} 24 \\ \times\ 83 \\ \hline \end{array}$		2 marks
23	$8253 \div 9 =$		1 mark
24	$\begin{array}{r} 5.26 \\ \times\ \ \ \ 5 \\ \hline \end{array}$		1 mark
25	$2\frac{2}{5} \times 3 =$		1 mark
26	$\begin{array}{r} 1367 \\ \times\ \ \ 29 \\ \hline \end{array}$		2 marks
27	$\frac{1}{4} - \frac{1}{6} =$		1 mark
28	$10.6 \div 4 =$		1 mark

Mark scheme

1. $\dfrac{12}{11}$ or equivalent

   e.g. $1\dfrac{1}{11}$ [1]

2. 70 952 [1]

3. 370 701 [1]

4. 10 099 [1]

5. 411 000 [1]

6. $\dfrac{4}{5}$ or equivalent [1]

7. 33 341 [1]

8. 1999 [1]

9. 530 000 [1]

10. 8504 [1]

11. 21 [1]

12. 110 [1]

13. 24 878 [1]

14. 720 [1]

15. 60 [1]

16. $\dfrac{10}{8}$ or equivalent

   e.g. $1\dfrac{1}{4}$ [1]

17. 54 [1]

18. 28 944 [1]

19. 2400 [1]

20. $\dfrac{9}{12}$ or equivalent [1]

   e.g. $\dfrac{3}{4}$

21. 46.365 [1]

22. *For 2 marks:* 1992 [2]

   Award only 1 mark if there is
   either *one error in the multiplication
   steps, then added correctly,*
   or *no error in the multiplication steps
   but an error in the addition step.*

23. 917 [1]

24. 26.3 [1]

25. $7\dfrac{1}{5}$ or equivalent [1]

   e.g. $\dfrac{36}{5}$

   *Do not accept unconventional
   mixed numbers e.g.* $6\dfrac{6}{5}$

26. *For 2 marks:* 39 643 [2]

   Award only 1 mark if there is
   either *one error in the multiplication
   steps, then added correctly,*
   or *no error in the multiplication steps
   but an error in the addition step.*

27. $\dfrac{1}{12}$ or equivalent [1]

28. 2.65 [1]