Multiple-choice section

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Question | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Answer | C | D | B | B | C | A | B | A |

Question 1 [8.1]

C

have a common vertex and a common arm

Question 2 [8.2]

D

The shape is a parallelogram.

Therefore, the opposite angles are equal. So if one angle is 120°, the opposite angle is 120°.

Angles in a parallelogram add up to 360°.

360° – (120° + 120°)

= 120°

120° ÷ 2 = 60° (opposite angles in a parallelogram are equal)

Question 3 [8.4]

B

SAS (Side Angle Side)

Question 4 [8.2]

B

58° + 90° + *x* = 180°

148° + *x* = 180°

*x* = 32°

Question 5 [8.3]

C

Since *ABCD* is congruent to *PQRS*:

*AD* = *PQ* = 8

*BC* = *RS* = 10

*AB* = *QR*

*DC* = *PS*

Question 6 [8.3]

A

Question 7 [8.5]

B

Question 8 [8.5]

A

Multiple-choice total marks: 8

Short answer section

Question 9 2 marks [8.1]

(a) 56° + 34° = 90° (complementary angles add to 90°)

(b) 18° + 162° = 180° (supplementary angles add to 180°)

Question 10 3 marks [8.1]

∠*COB* = 180° ̶ 140° = 40° (angles on a straight line add to 180°)

∠*BOD* – ∠*COB* = ∠*DOC*

148° – 40° = 108°

∠*DOC* = 108°

Question 11 2 marks [8.1]

360° – 281° = *x*

*x* = 79° (angles in a revolution)

Question 12 4 marks [8.1]

*m* = 125° (angle is vertically opposite 125°)

*n* = 180° – 125°

*n* = 55° (co-interior angles add to 180°)

Question 13 2 marks [8.2, 8.3]

(a) The exterior angle of a *triangle* is equal to the sum of the two opposite interior angles.

(b) Another name for a flip is a *reflection*.

Question 14 6 marks [8.2]

*a* + 63° = 180°

*a* = 117° (co-interior angles on parallel lines add to 180°)

63° = 5*b* – 2°

5*b* = 65°

*b* = 13° (opposite angles in a parallelogram are equal)

117° = 2*c* + 7°

110° = 2*c*

*c* = 55° (opposite angles in a parallelogram are equal)

Question 15 2 marks [8.4]

Triangle B and C are congruent.

There are two pairs of corresponding angles and one pair of a corresponding side between them.

Angle = Angle (50° given)

Side = Side (one dash)

Angle = Angle (right angle given)

Therefore, the triangles B and C are congruent, using ASAas the congruence test.

Question 16 2 marks [8.2]

Octagon has 8 sides, *n* = 8

(8 – 2) × 180°

= 6 × 180°

= 1080°

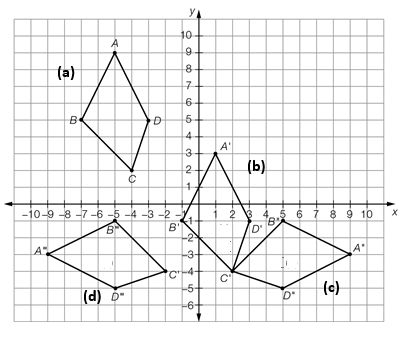
Total angle sum of an octagon is 1080°.

1080° ÷ 8 = 135°

135° is the size of one angle.

Question 17 6 marks [8.3]

(a)–(d) *A′′′* (-9, -3), *B′′′* (-5, -1), *C′′′* (-2, -4), *D′′′* (-5, -5)



Question 18 4 marks [8.5]

(a) The diagonals in a rectangle are the same, therefore they are congruent and this statement is true.

(b) A rhombus has two adjacent sides that are congruent, not four, so this statement is false.

(c) A square is a rhombus, but a rhombus is not always a square, so this statement is false.

(d) A square does have opposite angles that are equal, so they are congruent, therefore the statement is true.

Question 19 3 marks [8.4]

(a) *AB* = *DE*; *AC* = *DF*; *BC* = *EF*∆*ABC* ≡ ∆*DEF* Side, Side, Side, (SSS)

(b) ∠*EDF =*∠*EFD* (base angles in isosceles triangle)∠*EDF* = 61°

Question 20 2 marks [8.5]

Left and right triangles are congruent and are isosceles triangles.

Top and bottom triangles are congruent and are isosceles triangles.

*x* = 56° (base angles in isosceles triangle)

Short answer total marks: 38

Extended answer section

Question 21 4 marks [8.2]

4*x* + 1° + 5*x* – 8° + 2*x* + 11° = 180°

11*x* + 4° = 180°

11*x* = 176°

*x* = 16°

4*x* + 1° = 4 × 16° + 1° = 65°

5*x* – 8° = 5 × 16° – 8° = 72°

2*x* + 11° = 2 × 16° + 11° = 43°

Question 22 5 marks [8.2]

(a) *a* = 66° (corresponding angles on parallel lines)  
*b* = 56° (alternate angles on parallel lines)  
*c* = 180° – 66°  
*c* = 114° (supplementary angles add to 180°)

(b) ∠*BEI* (corresponding angles on parallel lines)

(c) 66° + 56° + 114° + ∠*AHI* = 360°  
236° + ∠*AHI* = 360°  
∠*AHI* = 124°

Extended answer total marks: 9

TOTAL test marks: 55