Geometry – Workbook 7, Part 1: Unit 4

Workbook G7-1
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1. Teacher to check.
2. Teacher to check.
3. Teacher to check.
   Sample:  
   ![Diagram](C D)

4. AB, BA; DE, ED; ST, TS
5. a) Teacher to check.
   b) line segment
6. 7 cm
7. Teacher to check.
8. a) Circle: S, K, H
   b) ST; KJ; HG
9. RA, RK; BM, BQ; XD, DA
10. Teacher to check.
11. Teacher to check.
12. CD, BA intersect at E; FG, RS intersect at C; MN, KJ intersect at I
13. EF, TU intersect at S; AH, DF intersect at P; GB, EI intersect at U
14. Teacher to check.
   Sample:  
   ![Diagram](A B D)
15. Teacher to check.
16. a) Sample:  
   A, B; DB, EC; FG, BE; CG, AF
   b) Sample:  
   AC, EC i/a C; AC, BD i/a B
BONUS
17. BA, CA, BC, CB
18. Teacher to check.

Workbook G7-2
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1. Teacher to check.
2. ∠PQR or ∠RQP
   ∠CBA or ∠ABC
   ∠STU or ∠UTS
3. Circle: G; ∠FGH
   Circle: V; ∠UVW
   Circle: E; ∠EFD
   Circle: M; ∠LMN
4. Sample:  
   ∠HIJ; ∠ABC; ∠RMK
BONUS
∠AED, ∠AEB, ∠AEC, ∠DEB, ∠DEC, ∠CEB
5. a) ∠BAC
   b) line segment
6. 7 cm
7. Teacher to check.
8. a) Circle: S, K, H
   b) ST; KJ; HG
9. RA, RK; BM, BQ; XD, DA
10. Teacher to check.
11. Teacher to check.
12. CD, BA intersect at E; FG, RS intersect at C; MN, KJ intersect at I
13. EF, TU intersect at S; AH, DF intersect at P; GB, EI intersect at U
14. Teacher to check.
   Sample:  
   ![Diagram](C D)
15. Teacher to check.
16. a) Sample:  
   A, B; DB, EC; FG, BE; CG, AF
   b) Sample:  
   AC, EC i/a C; AC, BD i/a B
BONUS
17. BA, CA, BC, CB
18. Teacher to check.

Workbook G7-3
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1. a) Acute
   b) Obtuse
   c) Acute
   d) Obtuse
2. a) Acute; 60°
   b) Obtuse; 120°
   c) Obtuse; 110°
   d) Acute; 60°
3. a) 30°
   b) 78°
   c) 130°
   d) 45°
   e) 83°
4. a) Circle: Y; 105°
   b) Circle: Y; 100°
   c) Circle: Y; 120°
5. a) 40°
   b) 50°
since: 90° – 50° = 40
6. Teacher to check.
7. Teacher to check.
8. Teacher to check.
9. Teacher to check.

Workbook G7-4
page 105

1. a) AB ⊥ CD
   b) KJ ⊥ EF
   c) PQ ⊥ DE
   d) BA ⊥ CB
2. a) Yes
   b) Yes
   c) Yes
   d) Yes
   e) No
3. B; D
   A; C

Workbook G7-5
page 107

1. 6 cm; midpoint at 3 cm
   Teacher to check mark.
2. a) 4 cm; midpoint at 2 cm
   b) 11 cm; midpoint at 5.5 cm
3. Teacher to check.
4. a) C is the m/p of BD; N is the m/p of AB
   b) No, unless the diagram is to scale; then you could measure FE and ED to see if their lengths are equal.

BONUS
No: a line has infinite length so can’t have a midpoint.
5. Teacher to check.
6. Teacher to check.
7. Teacher to check.
8. a) BH
   b) FG
   c) D
   d) BH
   e) BH
   f) No since it doesn’t indicate it with little hash lines.
9. a) Circle: E, F, H, T
   b) Answers will vary.

Workbook G7-6
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1. They intersect.
2. C; A; B
3. Teacher to check.
4. a)  
   ![Diagram](a)
   b)  
   ![Diagram](b)
   c)  
   ![Diagram](c)
   d)  
   ![Diagram](d)
5. a) AB || XY
   b) FG || RS
   c) LM || GH
6. a) EF || WX
   b) BR || SV
   c) AB || CD
   d) ML || JK
7. a) CD; AB
   b) CD; AB
8. a) Teacher to check.
   b) DC; DC; BC; BC
   c) If two different lines are perpendicular to the same line, then they are parallel.
9. Circle: 2nd, 3rd, 4th and 5th flags
10. Teacher to check.
11. a) 5, 6, 7, 8
   b) 0, 3, 0, 4
   c) Predication: when the number of sides is an even number.
BONUS 2 pairs (at most)
12. Teacher to check.

Workbook G7-7
page 112
1. C; A; B
2. a) 35º
   b) 70º
   c) 40º
   d) 90º
3. ∠4 and ∠1;
   ∠4 and ∠3;
   ∠2 and ∠3
4. 180º, 180º;
   180º + 180º = 360º
5. 180º;
   180º, 180º;
   360º
6. Predication: 360º;
   360º, 360º
7. 180º;
   180º;
   30º
8. a) 70º
   b) 30º + 30º; 120º
   c) 180º – (40º + 90º) = 50º
9. 20º
10. a) 90º
    b) 90º
    c) 60º
11. a) No; teacher to check sketch.
    b) No; teacher to check sketch.
12. a) 45º

Workbook G7-8
page 114
INVESTIGATION 1
A. Teacher to check.
B. True
   False
   True

INVESTIGATION 2
A. a) All sides equal: G
    1 angle is a right angle: D, F
    2 sides are equal: B, C, D
    All angles are acute: C, E, G
    No sides are equal: A, E, F
    1 angle is obtuse: A, B
   b) Classifying - angles
      D, F;
      C, E, G;
      A, B
   c) Classifying - sides
      A, E, F;
      B, C, D;
      G
B. Isosceles:
   2 angles are equal
   Equilateral:
   3 angles are equal

Workbook G7-9
page 117
1. Teacher to check.
2. a) 53º;
   b) 53º + 53º;
   106º
   b) 75º;
   75º + 75º;
   150º
   c) 20º;
   20º + 20º;
   40º
3. Answers will vary.
4. No
5. Teacher to check.
6. No, must be acute:
   90º, 180º;
   45º, 90º
7. Sample:

Workbook G7-10
page 118
INVESTIGATION 1
A. Teacher to check.
   Sample:
   square –
   rhombus 1 –
   rhombus 2 –
B. Teacher to check.
   Sample:
   rectangle –
   kite –
   parallelogram –
C. Teacher to check.

INVESTIGATION 2
A. Teacher to check.
   C. i) …, square, rectangle
      ii) Rhombus, square
      iii) Square, rectangle
      iv) Square
      vi) Kite, square, rhombus
D. i) Square, rectangle
   ii) Parallelogram, rhombus, square, rectangle
   iii) Parallelogram, rhombus, square,
INVESTIGATION 1

A. a) ![Diagram of a triangle]
    b) ![Diagram of a rectangle]
    c) ![Diagram of a pentagon]
    d) ![Diagram of a hexagon]

B. Fig T S P H
   # E 3 4 5 6
   # LS 3 4 5 6

C. They are equal.
   1. No
   2. Teacher to check.
      Sample:
      ![Diagram of a rectangle]

INVESTIGATION 2

A. Yes;
   Yes
B. Perpendicular bisectors;
   Angle bisector;
   Perpendicular bisector
C. They are the same as the lines of symmetry.

Workbook G7-11

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INVESTIGATION 1

A. a) Right figure
    b) Left figure
    c) Left figure
    d) Right figure

B. Fig T S P H
   # E 3 4 5 6
   # LS 3 4 5 6

C. They are equal.
   1. No
   2. Teacher to check.
      Sample:
      ![Diagram of a rectangle]

INVESTIGATION 2

A. Yes;
   Yes
B. Perpendicular bisectors;
   Angle bisector;
   Perpendicular bisector
C. They are the same as the lines of symmetry.

Workbook G7-12

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1. Teacher to check.
2. a) Right figure
   b) Left figure
3. a) Left figure
   b) Right figure
   c) Left figure
4. a) Right figure
   b) Left figure
   c) Right figure
5. Teacher to check.
6. Teacher to check.
7. a) Right figure
   b) Left figure
   c) Right figure
   d) Top set of lines
8. a) Sample sketch:

   ![Diagram of a triangle]
   b) A caramel-filled chocolate bar has a gold and blue rectangular foil wrapper that is 15 cm long and 10 cm wide with a logo that is 3 cm wide. What is the area of the wrapper? Sample sketch:

   ![Diagram of a rectangle]

9. a) Right figure
   b) Left figure
10. Answer 1:
   ![Diagram of a triangle]
   Remaining angles are 40º and 100º.
   Answer 2:
   ![Diagram of a triangle]
   Remaining angles are 70º and 70º.
11. a) Sum to 180º so 3rd angle = 90º
    b) Isosceles; the two angles opposite the equal sides are also equal.
    c) Sum to 180º so 2nd angle = 100º
12. a) 5;
    b) 4; a quadrilateral
    c) 3; a triangle
13. a) Left figure
    b) Right figure
14. Teacher to check.
15. Teacher to check.
16. a) No, can't tell if B has a right angle.
    b) No
    c) The perspective means that the 2 equal sides look equal in length.
    d) The wall is vertical and the ground is horizontal so can deduce they meet at 90º.
    e) A
    f) A
    g) 90º; 45º and 45º; 45º
17. a) 3 or 4
   Two pairs of opposite parallel sides;
   ∆ABC shares side BC with ∆DCB.
   Quadrilateral
   b) ABC, DCB; BC;
   c) Teacher to check.
   d) Teacher to check.
   e) Polygon ABDC is a square.