G1-3: Unit Test- Review

Name:___

Multiple Choice: Identify the choice that best completes the statement or answers the question.

1. Which are the correct measures for $\angle YXZ$ and $\angle XZY$?



2. In which diagram(s) is AB parallel to CD?



- a. Choice 1 only
- b. Choice 2 only
- c. Choice 1 and Choice 2
- d. Neither Choice 1 nor Choice 2
- 3. Determine the sum of the measures of the interior angles of this polygon.



a. 1080°
b. 1260°
c. 1620°
d. 1440°

4. Determine the length of c to the nearest tenth of a centimetre.



5. Determine the measure of θ to the nearest degree.



Short Answer: Show work and state reasoning where necessary.

6. Determine the unknown angles.



7. Given that $\angle RDE = 76^{\circ} \& \angle DES = 146^{\circ}$, Determine the measures of all other angles. **State your reasoning**



8. Determine the sum of the measures of the interior angles of this seven-sided polygon. Show your calculation.



- 9. In $\triangle ABC$, $\angle A = 65^{\circ}$, a = 23.5 cm, and $\angle C = 71^{\circ}$. Determine the length of side *c* to the nearest tenth of a centimetre.
- 10. In $\triangle ABD$, the values of *a* and *d* are known. What additional information do you need to know if you want to use the cosine law to solve the triangle?
- 11.A golf hole H has a "dog right" left as shown. How far is the tee, T, from the hole, H?



- 12. A tree casts a shadow that is 19 m in length. The angle of elevation of the tree is 40° . What is the height of the tree?
- 13. Determine the length of *w* to the nearest tenth of a centimetre.



14. Given $\angle UWX = \angle WYZ$, prove: $TV \parallel WX$. State your reasoning!



15. Two Jasper National Park rangers in their fire towers spot a fire. Determine the distances, to the nearest tenth of a kilometre, from each tower to the fire. Show your work.



G1-3: Review questions Answer Section

MULTIPLE CHOICE

- ANS: A PTS: 1 DIF: Grade 11 REF: Lesson 2.3 OBJ: 1.2 Prove, using deductive reasoning, properties of angles formed by transversals and parallel lines, including the sum of the angles in a triangle. | 2.1 Determine the measures of angles in a diagram that involves parallel lines, angles and triangles, and justify the reasoning. TOP: Angles in triangles KEY: angles | triangles
- ANS: C PTS: 1 DIF: Grade 11 REF: Lesson 2.1 OBJ: 1.1 Generalize, using inductive reasoning, the relationships between pairs of angles formed by transversals and parallel lines, with or without technology. | 1.5 Verify, with examples, that if lines are not parallel the angle properties do not apply. TOP: Parallel lines KEY: parallel lines| transversals
- 3. ANS: C PTS: 1 DIF: Grade 11 REF: Lesson 2.4
 OBJ: 1.3 Generalize, using inductive reasoning, a rule for the relationship between the sum of the interior angles and the number of sides (n) in a polygon, with or without technology 1.4 Identify and correct errors in a given proof of a property involving angles. 2.2 Identify and correct errors in a given solution to a problem that involves the measures of angles. 2.3 Solve a contextual problem that involves angles or triangles. TOP: Angle properties in polygons KEY: polygons angle properties
- 4. ANS: C PTS: 1 DIF: Grade 11 REF: Lesson 3.2 OBJ: 3.5 Solve a problem involving the sine law that requires the manipulation of a formula. TOP: Proving and applying the sine law KEY: sine law
- 5. ANS: DPTS: 1DIF: Grade 11REF: Lesson 3.3OBJ: 3.3 Solve a problem involving the cosine law that requires the manipulation of a formula.TOP: Proving and applying the cosine lawKEY: cosine law

SHORT ANSWER

6. ANS: $\angle EAD = 47^{\circ}, \angle ABC = 47^{\circ}, \angle ADE = 51^{\circ}, \angle BCD = 51^{\circ}, \angle CDA = 129^{\circ}$

PTS: 1 DIF: Grade 11 REF: Lesson 2.3 OBJ: 1.2 Prove, using deductive reasoning, properties of angles formed by transversals and parallel lines, including the sum of the angles in a triangle. 2.1 Determine the measures of angles in a diagram that involves parallel lines, angles and triangles, and justify the reasoning. TOP: Angles in triangles KEY: angles | triangles



8.ANS:

 $180^{\circ}(7-2) = 900^{\circ}$

PTS: 1 DIF: Grade 11 REF: Lesson 2.4 OBJ: 1.3 Generalize, using inductive reasoning, a rule for the relationship between the sum of the interior angles and the number of sides (n) in a polygon, with or without technology 1.4 Identify and correct errors in a given proof of a property involving angles. 2.2 Identify and correct errors in a given solution to a problem that involves the measures of angles. 2.3 Solve a contextual problem that involves angles or triangles.

TOP: Angle properties in polygons KEY: polygons angle properties

9. ANS:

c = 24.5 cm

PTS: 1 DIF: Grade 11 REF: Lesson 3.2

OBJ: 3.5 Solve a problem involving the sine law that requires the manipulation of a formula.

TOP: Proving and applying the sine law KEY: sine law

10. ANS:

For example, knowing the length of b or the measure of $\angle B$ would allow me to solve the triangle.

PTS: 1 DIF: Grade 11 REF: Lesson 3.3

OBJ: 3.1 Draw a diagram to represent a problem that involves the cosine law or the sine law. | 3.2 Explain the steps in a given proof of the sine law or cosine law.

a = 252m

TOP: Proving and applying the cosine law

1189

72 m

210 m

KEY: cosine law

a= 2102+72-2(210×72)cos 118

11.

1. A golf hole at H has a "dog leg" as shown. How far is the tee (T) from the hole (H)? $a^2 = b^2 + c^2 - 2bccosA$

12.

3. A tree casts a shadow that is 19 m in length. The angle of elevation of the tree is 40 degrees. What is the height of the tree?



13.ANS:

w = 27.3 cm

- PTS: 1 DIF: Grade 11 REF: Lesson 3.3
- OBJ: 3.3 Solve a problem involving the cosine law that requires the manipulation of a formula.

TOP: Proving and applying the cosine law

14. ANS:

 $\angle TUY = 37^{\circ}$ and $\angle UWX = 37^{\circ}$, by the transitive property. So, $TV \parallel WX$ by equal alternate interior angles.

PTS: 1 DIF: Grade 11 REF: Lesson 2.2

OBJ: 1.2 Prove, using deductive reasoning, properties of angles formed by transversals and parallel lines, including the sum of the angles in a triangle. | 1.4 Identify and correct errors in a given proof of a property involving angles. | 2.1 Determine the measures of angles in a diagram that involves parallel lines, angles and triangles, and justify the reasoning. | 2.2 Identify and correct errors in a given solution to a problem that involves the measures of angles. | 2.3 Solve a contextual problem that involves angles or triangles. | 2.4 Construct parallel lines, using only a compass or a protractor, and explain the strategy used. | 2.5 Determine if lines are parallel, given the measure of an angle at each intersection formed by the lines and a transversal.

KEY: cosine law

TOP: Angles formed by parallel lines KEY: parallel lines | transversals | angles

15. ANS:

Let $\angle C$ represent the measure of the remaining unknown angle.

 $\angle A + \angle B + \angle C = 180^{\circ}$ $64^{\circ} + 48^{\circ} + \angle C = 180^{\circ}$ $\angle C = 68^{\circ}$

Let *b* represent the distance from tower *A* to the fire.

$$\frac{b}{\sin B} = \frac{c}{\sin C}$$
$$\frac{b}{\sin 48^{\circ}} = \frac{4.2}{\sin 68^{\circ}}$$
$$b = \sin 48^{\circ} \left(\frac{4.2}{\sin 68^{\circ}}\right)$$
$$b = 3.366...$$

The distance from tower A to the fire is 3.4 km. Let a represent the distance from tower B to the fire.

$$\frac{\alpha}{\sin A} = \frac{c}{\sin C}$$
$$\frac{\alpha}{\sin 64^{\circ}} = \frac{4.2}{\sin 68^{\circ}}$$
$$\alpha = \sin 64^{\circ} \left(\frac{4.2}{\sin 68^{\circ}}\right)$$
$$\alpha = 4.071.$$

The distance from tower *B* to the fire is 4.1 km.

PTS:1DIF:Grade 11REF:Lesson 3.2OBJ:3.5 Solve a problem involving the sine law that requires the manipulation of a formula. | 3.6 Solve a
contextual problem that involves the cosine law or sine law.TOP:Proving and applying the sine law
KEY: sine law