## G1-3: Unit Test- Review

Name: $\qquad$

Multiple Choice: Identify the choice that best completes the statement or answers the question.
$\qquad$ 1. Which are the correct measures for $\angle Y X Z$ and $\angle X Z Y$ ?

a. $\angle Y X Z=52^{\circ}, \angle X Z Y=77^{\circ}$
b. $\angle Y X Z=52^{\circ}, \angle X Z Y=87^{\circ}$
c. $\angle Y X Z=62^{\circ}, \angle X Z Y=77^{\circ}$
d. $\angle Y X Z=62^{\circ}, \angle X Z Y=87^{\circ}$
$\qquad$ 2. In which diagram(s) is $A B$ parallel to $C D$ ?
1.

2.

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. $1080^{\circ}$
b. $1260^{\circ}$
c. $1620^{\circ}$
d. $1440^{\circ}$
4. Determine the length of $c$ to the nearest tenth of a centimetre.

a. 23.0 cm
b. 25.0 cm
c. 24.0 cm
d. 26.1 cm
5. Determine the measure of $\theta$ to the nearest degree.

a. $60^{\circ}$
b. $59^{\circ}$
c. $61^{\circ}$
d. $62^{\circ}$

Short Answer: Show work and state reasoning where necessary.
6. Determine the unknown angles.

7. Given that $\angle \mathrm{RDE}=76^{\circ}$ \& $\angle \mathrm{DES}=146^{\circ}$,

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 $\triangle A B C, \angle A=65^{\circ}, a=23.5 \mathrm{~cm}$, and $\angle C=71^{\circ}$. Determine the length of side $c$ to the nearest tenth of a centimetre.
10. In $\triangle A B D$, 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 $40^{\circ}$. What is the height of the tree?
13. Determine the length of $w$ to the nearest tenth of a centimetre.

14. Given $\angle U W X=\angle W Y Z$, prove: $T V \| W X$. 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

1. 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
2. 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. $\mid 1.5$ 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: D 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 KEY: cosine law

## SHORT ANSWER

6. ANS:
$\angle E A D=47^{\circ}, \angle A B C=47^{\circ}, \angle A D E=51^{\circ}, \angle B C D=51^{\circ}, \angle C D A=129^{\circ}$

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
7. ANS:

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:
$c=24.5 \mathrm{~cm}$

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. $\mid 3.2$ Explain the steps in a given proof of the sine law or cosine law.
TOP: Proving and applying the cosine law KEY: cosine law
11.

1. A golf hole at H has a "dog leg" as shown. How far is the tee $(T)$ from the hole $(\mathrm{H})$ ?

$$
\begin{aligned}
& a^{2}=b^{2}+c^{2}-2 b c \cos A \\
& a^{2}=210^{2}+72^{2}-2(210)(72) \cos 118 \\
& a=252 \mathrm{~m}
\end{aligned}
$$


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?


## $\tan 40=\frac{x}{19}$ $x=16 \mathrm{~m}$

13.ANS:
$w=27.3 \mathrm{~cm}$
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 KEY: cosine law
14. ANS:
$\angle T U Y=37^{\circ}$ and $\angle U W X=37^{\circ}$, by the transitive property.
So, $T V \| W X$ 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.
TOP: Angles formed by parallel lines KEY: parallel lines| transversals| angles
15. ANS:

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

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

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

$$
\begin{aligned}
\frac{b}{\sin B} & =\frac{c}{\sin C} \\
\frac{b}{\sin 48^{\circ}} & =\frac{4.2}{\sin 68^{\circ}} \\
b & =\sin 48^{\circ}\left(\frac{4.2}{\sin 68^{\circ}}\right) \\
b & =3.366 \ldots
\end{aligned}
$$

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

$$
\begin{aligned}
\frac{a}{\sin A} & =\frac{c}{\sin C} \\
\frac{a}{\sin 64^{\circ}} & =\frac{4.2}{\sin 68^{\circ}} \\
a & =\sin 64^{\circ}\left(\frac{4.2}{\sin 68^{\circ}}\right) \\
a & =4.071 \ldots
\end{aligned}
$$

The distance from tower $B$ to the fire is 4.1 km .
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.|3.6 Solve a contextual problem that involves the cosine law or sine law. TOP: Proving and applying the sine law KEY: sine law

