Trigonometry Review

Part A

1. Find the measure of the indicated side.

a)

15 ft. — 50° at Z — y — right angle at Y — X

b) R — 62° — s — T — 23 m — right angle at S

c) E — 8 cm — F — f — 35° at D
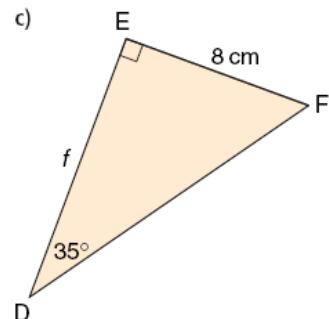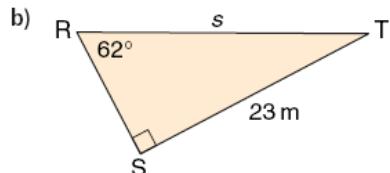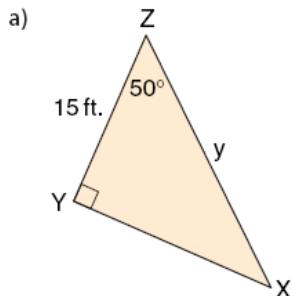
2. Determine the measure of angle A.

a) A — 114 m — C — 47 m — B (right angle at C)

b) B — 1.5 km — A — 2.6 km — C (right angle at B)

c) B — 3.7 cm — C — 3.1 cm — A (right angle at B)
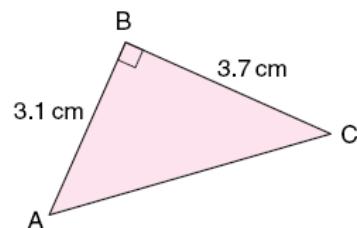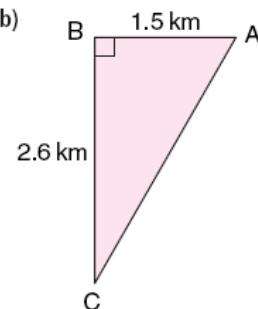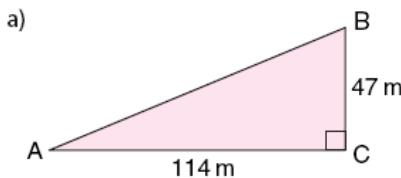
3. A guy wire is attached to the top of a vertical tower and to an anchor point 25 m from the base of the tower. The guy wire makes an angle of elevation of $65°$ with the ground. What is the height of the tower?

4. A cable car rises 150 m for every 50 m it travels horizontally. What is the angle the cable car makes with the ground?

Trigonometry Review
Part B

1. Use the Sine Law to find the indicated side or angle.

a)
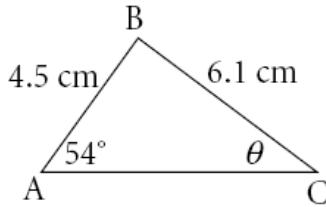
b)
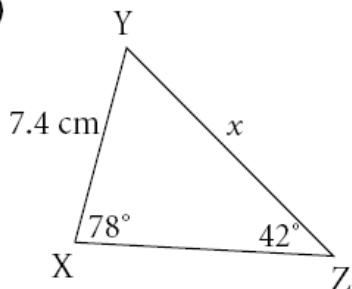

c)
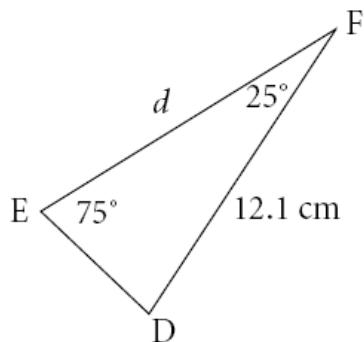
2. Use the Cosine Law to find the indicated side or angle.

a)
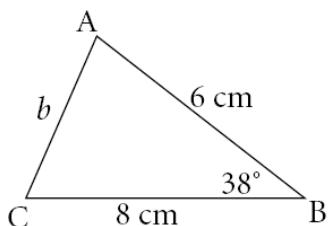
b)
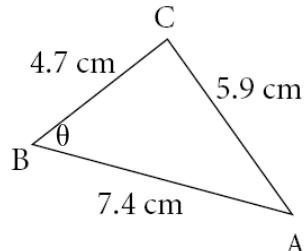
c)
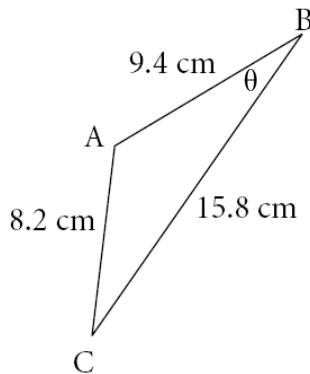
3. Solve each triangle.
a. $\triangle ABC$ given $\angle B = 90^o$, c = 7.5 cm, and a = 4.8 cm
b. $\triangle KMN$ given $\angle M = 63^o$, and m = 7.5 cm
c. $\triangle XYZ$ given $\angle Y = 54^o$, x = 7.1 c, and z = 4.9 cm

4. Jermaine is flying a kite and has let out 98 m of string. The angle of elevation of the string is 62°. How high is the kite above the ground?

5. Two points, A and B, are on the same side of a tower in the same vertical planes as the tower. Then angle of elevation of the tope of the tower from Point A is 28°. Point B is closer to the tower, 140 m from point A. The angle of elevation of the top of the tower from point B is 37°. Determine the height of the tower.

Trigonometry Review
Part C

1. The coordinates of a point P on a terminal arm of $\angle\theta$ in standard position are given, where $0^o \le \theta \le 360^o$. Determine the exact values of the 6 trigonometric ratios.
   a. P(6, 5)   b. P (-1, 8)   c. (-2, -5)   d. P(-2, 6)

2. Find the exact value of each trigonometric ratio.
   a. $\sin 60^o$ b. $\tan 300^o$ c. $\cos 215^o$ d. $\sin 330^o$

3. Angle θ is in standard position, and $0^o \le \theta \le 360^o$. Find the possible value(s) of θ.
   a. $\sin\theta = \dfrac{1}{3}$ b. $\cos\theta = -\dfrac{2}{5}$ c. $\tan\theta = -4.5$ d. $\sec\theta = \dfrac{7}{4}$

4. If $180^o \le \theta \le 360^o$, and $\cos\theta = \dfrac{3}{4}$, find

   a. the exact value of the other 5 primary trigonometric ratios.
   b. the possible value(s) of θ.

5. If $0^o \le \theta \le 360^o$, and $\sin\theta = -\dfrac{2}{5}$, find

   a. the exact value of the other 5 primary trigonometric ratios.
   b. the possible value(s) of θ.

6. Prove the following Trig Identities
   a. $\sin^2 x + \dfrac{\sin x \cos x}{\tan x} = 1$ b. $\dfrac{1}{1 - \sin^2 x} = 1 + \tan^2 x$

   c. $\cos^2 x - \sin^2 x = 2\cos^2 x - 1$ d. $\dfrac{1 + 2\sin x \cos x}{\sin x + \cos x} = \sin x + \cos x$

will learn in grade 12

Trigonometry Review
Part D

1. Find the exact radian measure.
   a. $40°$　　　b. $75°$　　　c. $315°$　　　d. $90°$　　　　　　e. $330°$

2. Find the approximate number of radians.
   a. $60°$　　　b. $80°$　　　c. $145°$　　　d. $255°$　　　　　e. $335°$

3. Find the exact number of degrees for the following radian measure.
   a. $\dfrac{\pi}{3}$　　　b. $\dfrac{3\pi}{4}$　　　c. $\dfrac{11\pi}{3}$　　　　d. $\dfrac{\pi}{18}$　　　e. 4π

4. The coordinates of a point P on a terminal arm of $\angle\theta$ in standard position are given, where $0 \le \theta \le 2\pi$. Determine the exact values of the 6 trigonometric ratios.
   a. P(-6, 8)　　　　b. P (-5, 5)　　　　c. (-7, -9)　　　　d. P(3, 2)

5. Find the exact value of each trigonometric ratio.
   a. $\sin\dfrac{\pi}{3}$　　　　b. $\tan\dfrac{3\pi}{4}$　　　　c. $\cos\dfrac{7\pi}{6}$　　　　d. $\sin\dfrac{11\pi}{6}$

6. Angle θ is in standard position, and $0 \le \theta \le 2\pi$. Find the possible value(s) of θ.
   a. $\sin\theta = -\dfrac{2}{3}$　　　　b. $\cos\theta = \dfrac{3}{7}$　　　　c. $\cot\theta = -4.5$　　　　d. $\csc\theta = \dfrac{7}{4}$

7. If $0 \le \theta \le 2\pi$, and $\sin\theta = \dfrac{3}{4}$, find

   a. the exact value of the other 5 primary trigonometric ratios.
   b. the possible value(s) of θ.

8. If $0 \le \theta \le 2\pi$, and $\cos\theta = -\dfrac{2}{5}$, find

   a. the exact value of the other 5 primary trigonometric ratios.
   b. the possible value(s) of θ.

9. Solve each equation for $0 \le \theta \le 2\pi$.
   a. $2\cos x + 1 = 0$　　　　b. $\sqrt{2}\cos x - 1 = 0$　　　　c. $\tan x = -1$
   d. $2\cos^2 x - 7\cos x + 3 = 0$　　　　e. $3\sin x = 2\cos^2 x$　　　c. $\tan^2 x - 1 = 0$