

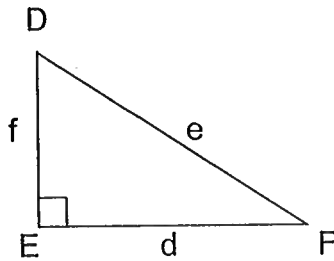
Name _____

Circle your teacher W or R

Math 10 Unit 2 – Practice Test
Trigonometry of Right Triangles

Section A – True and False

Use the diagram below to decide whether each statement is true or false. Circle your choice.



1) Side DE is opposite $\angle F$.

True

False

2) Side DF is the adjacent side to $\angle D$

True

False

3) $f^2 = d^2 + e^2$

True

False

4) If $\angle D = 47^\circ$ then $\angle F = 53^\circ$

True

False

5) $\sin \angle D = \cos \angle F$

True

False

6) $\tan \angle D = \frac{f}{d}$

True

False

Section B – Multiple Choice

Choose the best response for each of the following questions. Circle that response.

1) In order to use the Pythagorean Theorem, what must be true about a given triangle?

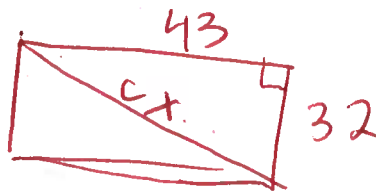
a) The triangle must be an obtuse triangle, with one angle being 135° .

b) The sum of the interior angles of the triangle must add to 180° .

c) The triangle must be an acute triangle, with one angle being 45° .

d) The triangle must be a right triangle, with one angle being 90° .

$$1849 + 1024 = \sqrt{2873}$$



$$a^2 + b^2 = c^2$$

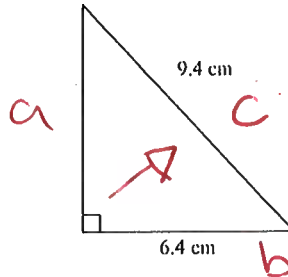
$$43^2 + 32^2 = c^2$$

2) TV screen sizes are indicated by the distance between opposite corners. A big screen TV has sides that are 32 in high and 43 in wide. What is the size of the TV?

- a) 49 in b) 59 in c) 29 in **d) 54 in**

3) The length of the unknown side in the diagram below is

- a) 3 cm
b) 47.4 cm
c) 6.9 cm
d) 11.4 cm



$$a^2 = c^2 - b^2$$

$$a^2 = 9.4^2 - 6.4^2$$

$$= 88.36 - 40.96$$

$$= \sqrt{47.4} = 6.9$$

4) The sine ratio relates to which two sides of a right triangle?

- a) The side opposite a given angle and the hypotenuse.**
b) The side adjacent to a given angle and the hypotenuse.
c) The side adjacent to a given angle and the opposite side.
d) The side adjacent to a given angle and the vertical side.

$$S = \frac{o}{h}$$

5) The cosine ratio relates to which two sides of a right triangle?

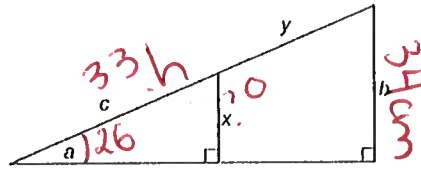
- a) The side adjacent to a given angle and the vertical side.
b) The side adjacent to a given angle and the hypotenuse.
c) The side adjacent to a given angle and the opposite side.
d) The side opposite a given angle and the hypotenuse.

6) The tangent ratio relates to which two sides of a right triangle?

- a) The side adjacent to a given angle and the hypotenuse.
b) The side adjacent to a given angle and the vertical side.
c) The side opposite a given angle and the adjacent side.
d) The side opposite a given angle and the hypotenuse.

8) If the diagram below has the following dimensions, what is the value of x?

$a = 26^\circ$, $b = 34$ cm, $c = 33$ cm



$$\sin 26 = \frac{h}{33}$$
$$33 \times \sin 26$$

a) 29.6 cm

b) 14.5 cm

c) 14.9 cm

d) 16.1 cm

11) What is the cosine of 19° ?

a) 0.946

b) 0.344

c) 0.326

d) 0.360

12) What is the sine of 24° ?

a) 0.405

b) 0.406

c) 0.407

d) 0.914

13) If the tangent of an angle is 0.9431, how big is the angle?

a) 11.89°

b) 12.15°

c) 43.32°

d) 77.85°

14) If the sine of an angle is 0.6776, how big is the angle?

a) 7.97°

b) 42.66°

c) 8.05°

d) 81.85°

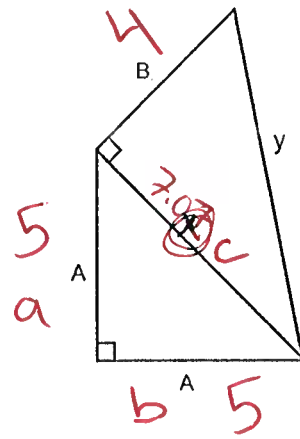
Part C – Short Answer

1) In the diagram below, A = 5 cm and B = 4 cm. What are the lengths of x and y?

$$25 + 25 = 50$$

$$x = 7.07 \text{ cm}$$

$$a^2 + b^2 = c^2$$



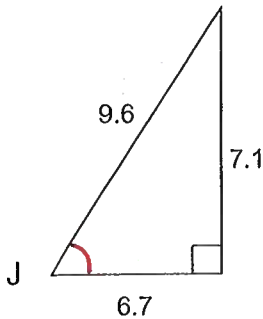
$$7.07^2 + 4^2 = 49.985 + 16$$

$$y = 8.12 \text{ cm}$$

2) Using the diagram below, find

a) $\sin \angle J$ 0.73

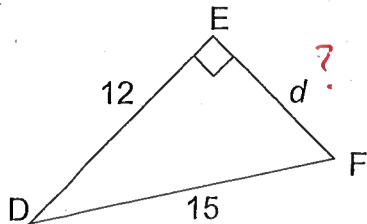
b) $\angle J$ 47°



$$\tan \theta = \frac{7.1}{6.7}$$

$$\sin \theta = \frac{7.1}{9.6} =$$

3) Find the length of d 9



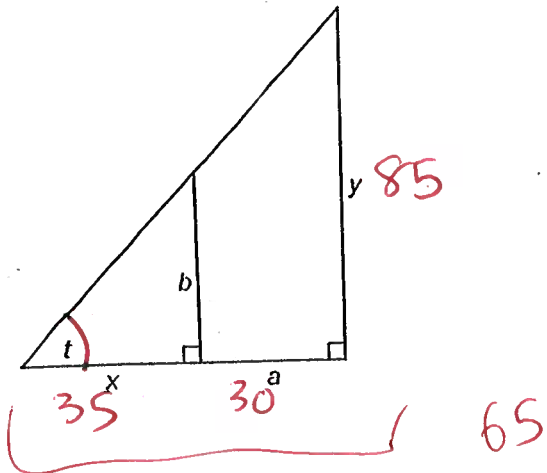
$$15^2 - 12^2 = d^2$$

$$225 - 144 = \sqrt{81}$$

$$= 9$$

4) In the diagram below, $a = 30$ cm, $x = 35$ cm, and $y = 85$ cm.

Find $\angle t$ 53°

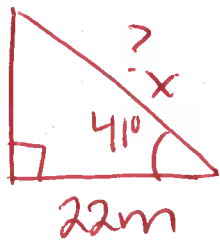


$$\tan \theta = \frac{85}{65}$$

$$\tan \theta = 1.3077$$

$$= 53^\circ$$

5) In a right triangle, one of the angles is 41° . If the side adjacent to that angle is 22 m, what is the length of the hypotenuse? Draw a diagram and show your work.

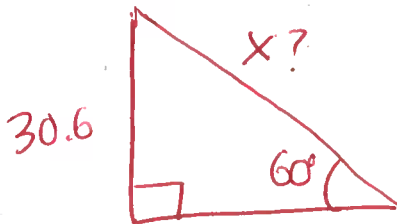


$$\cos 41 = \frac{22}{h}$$

$$\frac{22}{\cos 41^\circ} = h$$

$$= \underline{\underline{29.2m}}$$

6) If one of the angles of a right triangle is 60° and the opposite side is 30.6 m, what is the length of the hypotenuse? Draw a diagram and show your work.

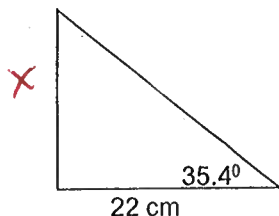


$$\sin 60 = \frac{30.6}{x}$$

$$x/h = \frac{30.6}{\sin 60}$$

$$= \underline{\underline{35.3m}}$$

7) A staircase has stairs that are each 22 cm deep. The angle of elevation of the staircase is 35.4° . What is the height of one stair? Use the diagram shown below and show your work.

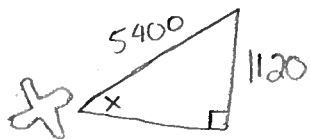


$$\tan 35.4 = \frac{x}{22}$$

$$22 \times \tan 35.4 = \underline{\underline{15.6 \text{ cm}}}$$

9) A plane takes off from the airport and climbs at a steady rate. If the plane travelled 5.4 km after take-off and gained 1120 m of elevation (vertical gain), what angle did the plane take off at?

$$5.4 \text{ km} = 5400 \text{ m}$$



$$\sin \theta = \frac{1120}{5400}$$

$$\sin \theta = 0.2074$$

$$= \theta \underline{\underline{12^\circ}}$$