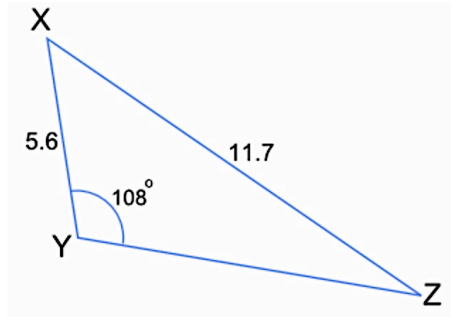

Name _____

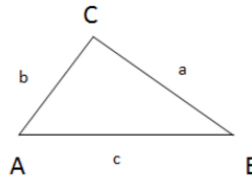
YOU MAY USE A CALCULATOR!

You have a **maximum of 90 minutes** to complete this assessment. You may write on the document.

1. (G.SRT.11)
What is the size of Angle X?



- A. 20.3°
B. 27.1°
C. 38.3°
D. 44.9°
-
2. (G.SRT.10)
Which of the following completes this law of Cosines using the figure below?



$$a^2 = b^2 + c^2 \underline{\hspace{1cm} ? \hspace{1cm}}$$

- A. $-2ac\cos C$
B. $+2bc\cos A$
C. $-2bc\cos A$
D. $-2bc\cos B$
-

3. (G.SRT.9)

Consider each statement about finding the measurements of triangles.
Which statement is false?

- A. If you know the lengths of the three sides of a triangle, you can find the measures of the angles.
 - B. If you know the measures of the two sides of a triangle and the measure of an angle not included between the two sides, you can solve the triangle.
 - C. If you know the measures of the three angles of a triangle, you can find the lengths of the sides.
 - D. If you know the measures of two angles of a triangle, you can find the measure of the third angle.
-

4. (F.TF.1)

A coin of radius 20 mm is rolled upon the ground at the rate of 10 revolutions/minute. How far will the coin travel in 24 seconds?

- A. 120π mm
 - B. 160π mm
 - C. 200π mm
 - D. 240π mm
-

5. (F.TF.2)

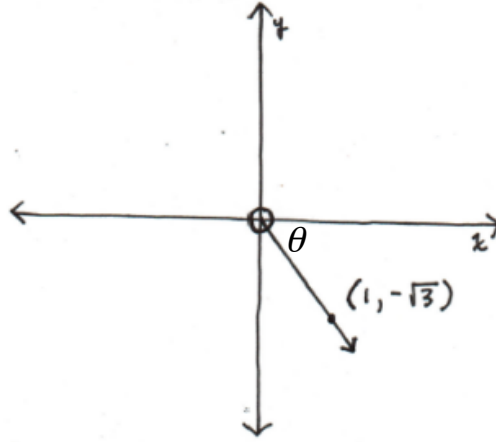
Find the measure of the reference angle for a 290° .

- A. 20°
 - B. 70°
 - C. 270°
 - D. 360°
-

6.

(F.TF.3)

Find the measure of the angle θ , pictured below, in standard position.
Express your answer in radians.



- A. $\frac{\pi}{3}$
- B. $\frac{\pi}{6}$
- C. $\frac{5\pi}{3}$
- D. $\frac{11\pi}{6}$

7.

(N.CN.8)

Simplify the expression $(1 - 3i)(i + 2) + \sqrt{-4}$. Write the answer in standard form.

- A. $5 - 3i$
- B. $3i - 1$
- C. $-1 - 7i$
- D. $-3 - 5i$

8.

(A.APR.5)

Expand $(-x - 3)^5$.

- A. $-x^5 - 243$
- B. $x^5 + 5x^4 + 10x^3 + 10x^2 + 5x + 1$
- C. $-x^5 - 15x^4 - 90x^3 - 270x^2 - 405x - 243$
- D. $x^5 + 15x^4 + 90x^3 + 270x^2 + 405x + 243$
-

9.

(A.APR1)

Two functions are depicted below.

Function 1

$$f(x) = x - 7$$

Function 2

x	$g(x)$
2	8
4	6
6	4
8	2
10	0

Find $(g + f)(x)$?

- A. $(g + f)(x) = 2x + 3$
- B. $(g + f)(x) = 3$
- C. $(g + f)(x) = -x^2 + 3$
- D. $(g + f)(x) = x^2 + 3$
-

10.

(F.BF.3)

The graph of $f(x)$ is provided in Figure 1.

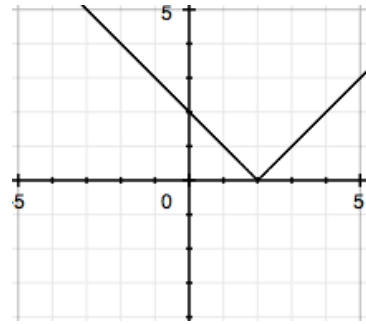
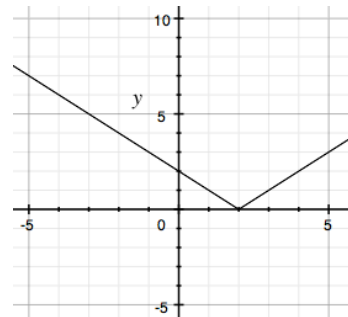


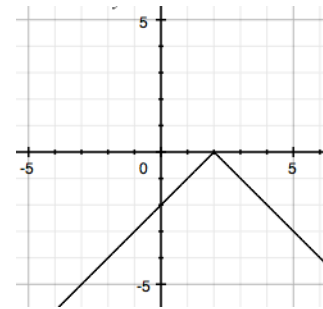
Figure 1

Which of the following accurately depicts $f(x+2)$?

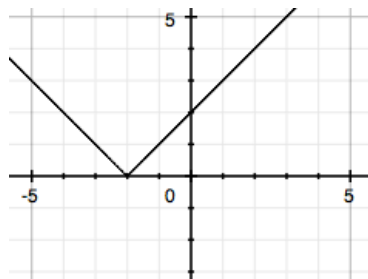
A.



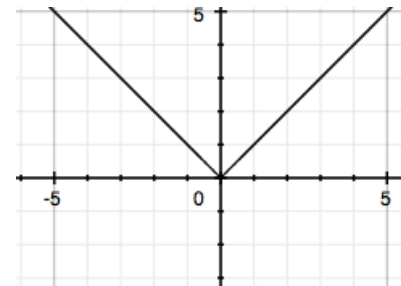
B.



C.



D.



11.

(A.APR.7)

24. Simplify $\frac{4x}{x-2} \div \frac{x}{x^2-4}$.

A. $\frac{4x}{x-2}$

B. $x^2 - 4$

C. $4x + 2$

D. $4x + 8$

12. (A.REI.11)

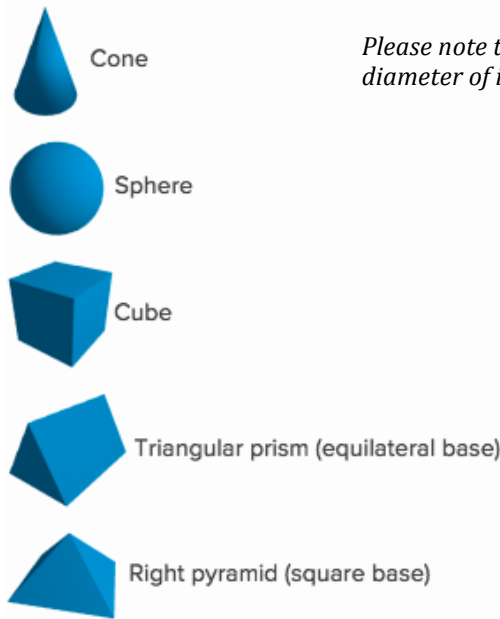
$f(x) = 6$ and $g(x) = x^2 - 3x - 4$. Find the points of intersection.

- A. (2, -6), (-5, 36)
- B. (-2, 6), (5, 6)
- C. (-2, -6), (-5, -6)
- D. there are no points of intersection

13. (G.GMD.4)

Which of the **objects** shown below could be sliced to create **trapezoid** cross-sections?

Select all that apply.



Please note that the height of the cone is greater than the diameter of its base.

The length of the triangular prism is greater than any side of its equilateral base.

- A. cube, triangular prism, and right prism
- B. triangular prism and right pyramid
- C. only the triangular prism
- D. none of the objects could be sliced to create a trapezoid cross-section

14.

(A.CED.3)

The graphs of the equations $y = 2x$, $y = 1$, and $y = 1 + x$ bound a triangle T . What is the area of T ?

- A. $\frac{1}{2}$
- B. $\frac{1}{4}$
- C. $\frac{\sqrt{5}}{2}$
- D. 1

15.

(F.LE.4)

A scientist measures the initial amount of Carbon-14 in a substance to be 25 grams.

The relationship between A , the amount of Carbon-14 remaining in that substance in grams, and t the elapsed time in years, since the initial measurement is modeled by the following equation:

$$A = 25e^{-.00012t}$$

In how many years will the substance contain **exactly** 20 grams of Carbon-14?

Give an **exact answer expressed as a natural logarithm**.

- A. 5 years
- B. $e^{.00012}$ years
- C. $\ln(0.8)$ years
- D. $\frac{\ln(0.8)}{-.00012}$ years