Math 11
Assignment

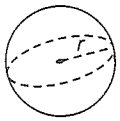
Name _____

MEASUREMENT

1.) Which expression represents the volume of a sphere with radius r?

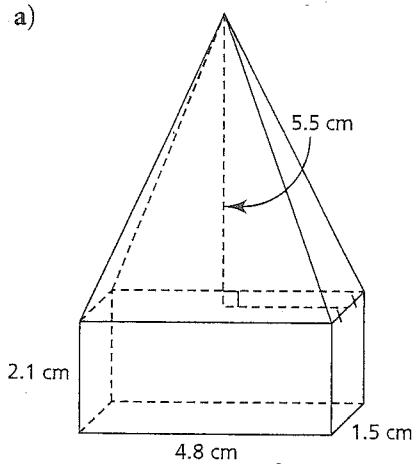
A. $\frac{4}{3}\pi^3 r$ B. $4\pi r^2$

C. $\frac{4}{3}\pi r^3$ D. $\frac{4}{3}\pi r^2$

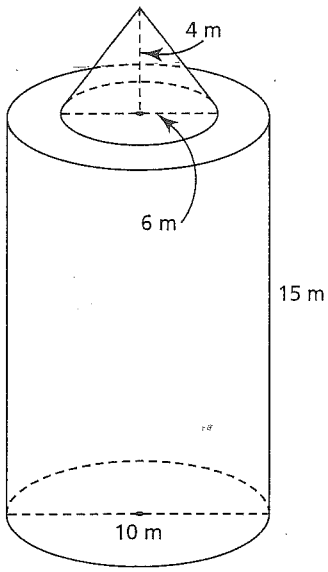


2.) Determine the volume and surface area of each composite object. Write your answers to the nearest tenth of a unit.

a)



b)



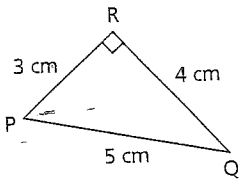
TRIGONOMETRY

3.) For questions 1 and 2, choose the correct answer: A, B, C, or D

For $\triangle PQR$, how many of these statements are true?

$\tan Q = \frac{3}{4}$ $\quad$ $\sin P = \frac{3}{5}$

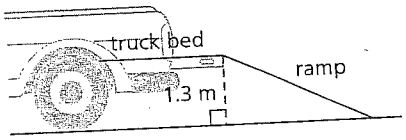
$\sin Q = \frac{3}{5}$ $\quad$ $\tan P = \frac{4}{3}$



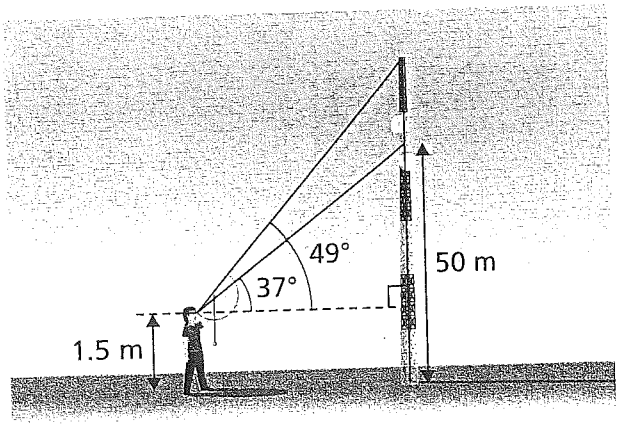
A. All are true. **B.** 3 are true. **C.** 2 are true. **D.** 1 is true.

4.) In right $\triangle DEF$, $\angle E = 90°$, $\angle F = 63°$, and $DF = 7.8$ cm. Solve this triangle. State the measures to the nearest tenth.

5.) A ramp is used to load a snowmobile onto the back of a pickup truck. The truck bed is 1.3 m above the ground. For safety, the angle of inclination of the ramp should be less than 40°. What is the shortest possible length of the ramp to the nearest centimetre? Explain why.



6.) A student uses a clinometer to measure the angle of elevation of a sign that marks the point on a tower that is 50 m above the ground. The angle of elevation is 37° and the student holds the clinometer 1.5 m above the ground. She then measures the angle of elevation of the top of the tower as 49°. Determine the height of the tower to the nearest tenth of a metre. The diagram is *not* drawn to scale.



FACTORS AND PRODUCTS

7.) The factorization of the trinomial $2x^2 + 7x + 6$ is:

A. $(2x + 1)(x + 6)$ B. $(2x + 2)(x + 3)$

C. $(2x + 3)(x + 2)$ D. $(2x + 6)(x + 1)$

8.) Write each number below as a product of its prime factors, then determine the least common multiple and the greatest common factor of the 3 numbers.

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9.) Expand and simplify.

a) $(2p - 1)(p^2 + 2p - 7)$

b) $(e + 2f)(2f^2 + 5f + 3e^2)$

10.) Factor each polynomial.

a) $f^2 + 17f + 16$

c) $4t^2 + 9t - 28$

ROOTS AND POWERS

11.) Which number is rational?

A. $\sqrt{0.09}$ B. $\sqrt{50}$ C. $\sqrt[3]{-\frac{64}{121}}$ D. π

12.) Write $44^{\frac{1}{2}}$ as a radical in simplest form.

13.) Simplify each expression. Write your answers using positive exponents.

a.) $(p^{-2}q^{-1})^2\left(pq^{\frac{1}{2}}\right)^2$

b.) $\left(\frac{c^6d^5}{c^3d^4}\right)^{-\frac{1}{3}}$

RELATIONS AND FUNCTIONS

14.) For the function $f(x) = 3 - 6x$, what is the value of $f(-3)$?

A. 1 B. 21 C. -15 D. 0

15.) For each relation represented below:

i) State whether it is a function and how you know.

ii) If the relation is a function:
State its domain and range.
Represent the function in a different way.
State whether it is a linear function and how you know.

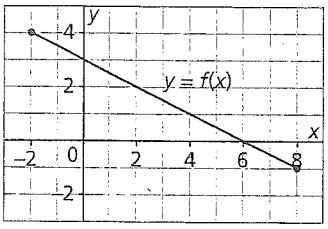
iii) If the relation is a linear function:
Identify the dependent and independent variables.
Determine the rate of change.

a) $\{(2, 5), (-3, 6), (1, 5), (-1, 4), (0, 2)\}$

b)

n	s
2	4
-1	1
1	1
-3	9

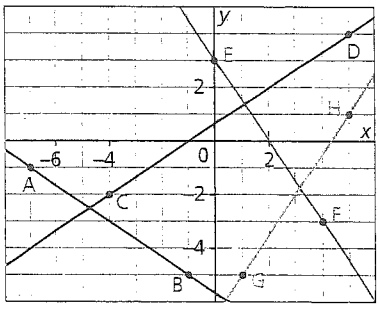
c)



LINEAR FUNCTIONS

16.) Which line at the right has slope $-\frac{3}{2}$?

A. AB B. CD C. EF D. GH



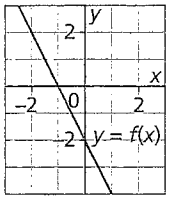
17.) Which line at the right has equation $2x - 3y + 2 = 0$?

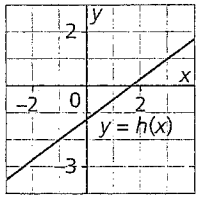
A. AB B. CD C. EF D. GH

18.) Determine an equation of the line that is parallel to the line with equation $y = -\frac{3}{2}x + 5$, and passes through A(6, 2). Explain how you know your equation is correct.

19.) Determine an equation of the line that is perpendicular to the line with equation $y - 3 = \frac{1}{3}(x + 2)$, and passes through B(−1, 2). Write the new

20.) Write the equation of each line in the form that you think best describes the line. Justify your choice.





SYSTEMS OF LINEAR EQUATIONS

21.) Solve each linear system.

i) $-3x - 4y = -2$
$x + 2y = 3$

ii) $-0.5x + 0.2y = -1$
$0.3x - 0.6y = -1.8$