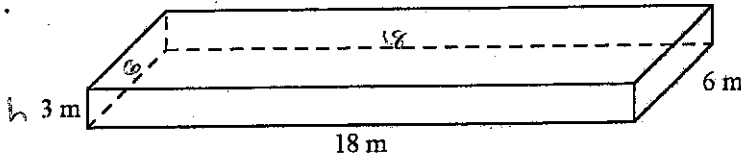


HM2 2nd Sem Final 2017-2018 Review

Use formulas to find the lateral area and surface area of the given prism. Round your answer to the nearest whole number.

1.



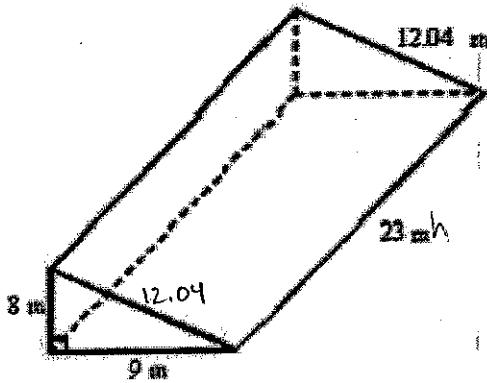
Not drawn to scale

$$LA = P_b h \quad SA = LA + 2B$$

$$LA = (18 + 6 + 18 + 6) \cdot 3 = (48) \cdot 3 = 144 \text{ m}^2$$

$$SA = 144 + 2(18 \cdot 6) = 144 + 2(108) = 360 \text{ m}^2$$

2.



Not drawn to scale

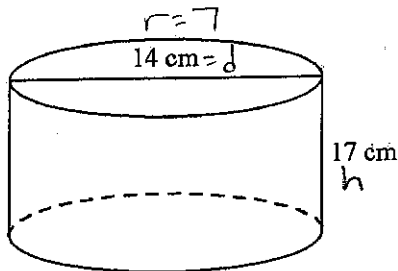
$$LA = P_b h \quad SA = LA + 2B$$

$$LA = (8 + 9 + 12.04) \cdot 23 = (29.04) \cdot 23 = 668 \text{ m}^2$$

$$SA = 668 + 2\left(\frac{1}{2} \cdot 9 \cdot 8\right) = 668 + 2(36) = 740 \text{ m}^2$$

Find the surface area of the cylinder in terms of π .

3.



Not drawn to scale

$$SA = LA + 2B = P_b h + 2B$$

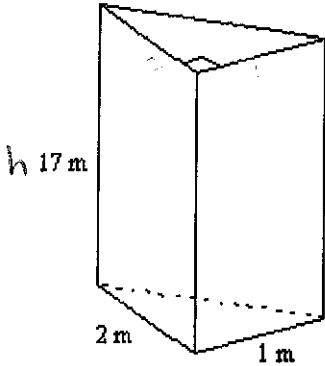
$$P_b = \pi \cdot d$$

$$B = \pi r^2$$

$$SA = (\pi \cdot 14) \cdot 17 + 2(\pi \cdot 7^2)$$

$$= 238\pi + 98\pi = 336\pi \text{ cm}^2$$

7.



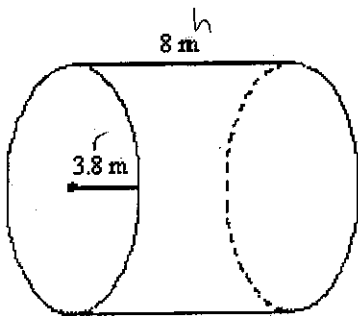
$$V = \beta \cdot h$$

$$V = \left(\frac{1}{2} \cdot 1 \cdot 2\right) \cdot 17 = \boxed{17 \text{ m}^3}$$

8. Concrete can be purchased by the cubic yard. How much will it cost to pour a slab 15 feet by 15 feet by 4 inches for a patio if the concrete costs \$43.00 per cubic yard?

Find the volume of the cylinder in terms of π .

9.



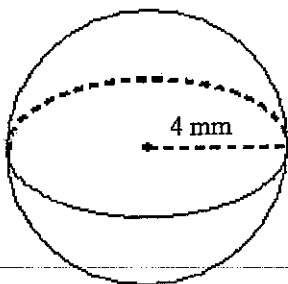
$$V = \beta \cdot h \quad \beta = \pi r^2$$

$$V = (\pi \cdot 3.8^2) \cdot 8 = \boxed{115.52 \pi \text{ m}^3}$$

Not drawn to scale

Find the volume of the sphere shown. Give each answer rounded to the nearest cubic unit.

10.



$$V = \frac{4}{3} \pi r^3 = \frac{4}{3} \pi \cdot 4^3 = \boxed{268 \text{ mm}^3}$$

What is each expression written using each base only once?

11. $6^7 \cdot 6^3$ $x^m \cdot x^n = x^{m+n}$

$$6^{7+3} = \boxed{6^{10}}$$

24. $\frac{y^{-5}}{y^6} \cdot y^{-5-6} = y^{-11} = \frac{1}{y^{11}}$

$\frac{x^m}{x^n} = x^{m-n}$ $x^{-m} = \frac{1}{x^m}$

25. $\frac{g^{10}h^9}{g^{16}h^4} = g^{10-16}h^{9-4} = g^{-6}h^5 = \frac{h^5}{g^6}$

B 26. What is the simplified form of the expression?

$\sqrt[3]{8}$ MATH H: 3C

- A. 8^3
 B. 2

- C. $\sqrt{8^3}$
 D. 8

27. Write the exponential expression $4x^{\frac{2}{3}}$ in radical form. $4\sqrt[3]{x^2}$

$x^{m/n} = \sqrt[n]{x^m}$

What is the degree of each monomial? Add exponents of variables

28. $7m^6n^5$ $6+5 = 11$

29. $5x^7y^3$ $7+3 = 10$

What is the sum or difference?

30. $5x^6 + 6x^6$ $11x^6$

31. $2x^4 - 6x^4$ $-4x^4$

Write the polynomial in standard form. Then name the polynomial based on its degree and number of terms. decreasing order of exponents highest exponent

32. $2 - 11x^2 - 8x + 6x^2$ degree = 2 3 terms
 $2 - 5x^2 - 8x \rightarrow -5x^2 - 8x + 2$, quadratic, trinomial

Simplify the difference.

33. $(-7x - 5x^4 + 5) - (-7x^4 - 5 - 9x)$ $2x^4 + 2x + 10$

Simplify the product.

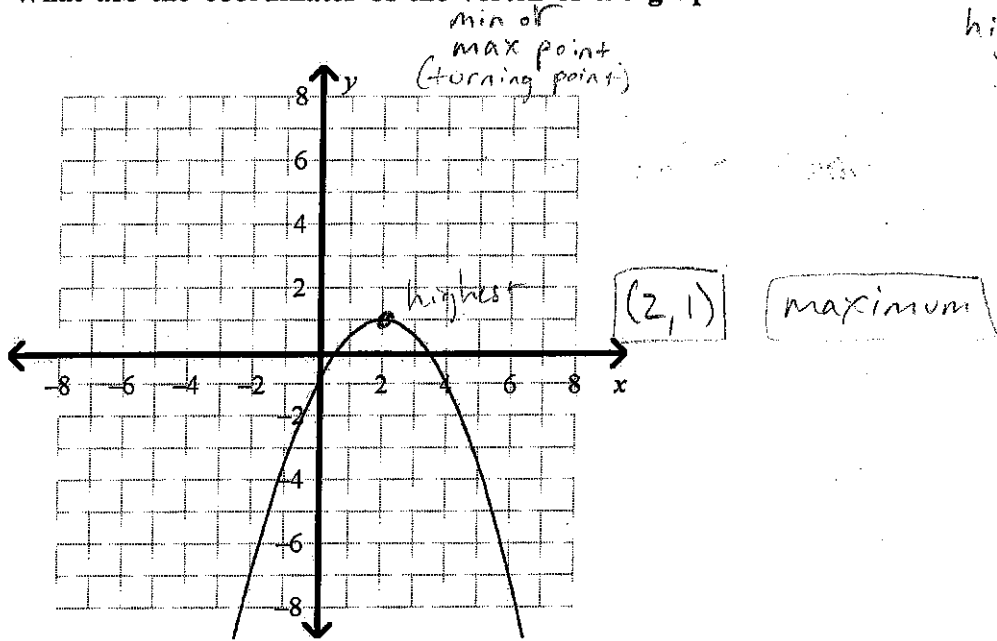
34. $2n(n^2 + 3n + 4)$ $2n^3 + 6n^2 + 8n$

Factor the polynomial.

35. $\frac{2x^3}{2x} + \frac{4x^2}{2x} + \frac{8x}{2x}$
 $2x(x^2 + 2x + 4)$

What are the coordinates of the vertex of the graph or table? Is it a maximum or minimum?

47.



48.

X	Y
0	1
-1	-2
-2	-3
-3	-2
-4	1

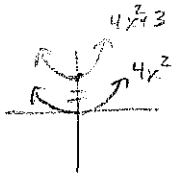
$(-2, -3)$ minimum

Order the group of quadratic functions from widest to narrowest graph.

49. $y = 2x^2, y = x^2, y = 4x^2$ $y = x^2, y = 2x^2, y = 4x^2$

50. $y = -\frac{2}{5}x^2, y = -\frac{1}{2}x^2, y = \frac{5}{2}x^2$ $y = -\frac{2}{5}x^2, y = -\frac{1}{2}x^2, y = \frac{5}{2}x^2$

51. How is the graph of $y = 4x^2 + 3$ different from the graph of $y = 4x^2$?
- A. It is shifted 3 unit(s) down.
 - B. It is shifted 3 unit(s) right.
 - C. It is shifted 3 unit(s) left.
 - D. It is shifted 3 unit(s) up.



Graph the function. Identify the vertex and axis of symmetry.

52. $f(x) = x^2 + 4x - 1$

Vertex: $x = -\frac{b}{2a}$ $x = -\frac{4}{2(1)}$
 plug in for y
 $x = \frac{-4}{2(1)} = \frac{-4}{2} = -2$
 $y = (-2)^2 + 4(-2) - 1 = 4 - 8 - 1 = -5$

$V: (-2, -5)$ AoS: $x = -2$

STAT VEDIT STAT → CALC 5: QUADPRG

63. A historian took a count of the number of people in a Gold Rush town for six years in the 1870's.

L1	Year	1870 ⁰	1871 ¹	1872 ²	1873 ³	1874 ⁴	1875 ⁵	1876 ⁶
L2	Population	500	515	516	503	476	435	380

Find a quadratic function that models the data as a function of x , the number of years since 1870. Use the model to estimate the number of people in the town in 1888.

- A. $P(x) = -3x^2 - 22x + 450$; 82 people
 B. $P(x) = -3x^2 - 22x + 450$; 149 people
 C. $P(x) = -7x^2 + 22x + 500$; 228 people
 D. $P(x) = -7x^2 + 22x + 500$; 311 people

$$x=8 \quad a=-7 \quad b=22 \quad c=500$$

$$-7x^2 + 22x + 500$$

$$-7(8)^2 + 22(8) + 500 = 228$$

Simplify the number using the imaginary unit i .

64. $\sqrt{-144} = i\sqrt{144} = 12i$

65. $\sqrt{-63} = i\sqrt{63} = 3i\sqrt{7}$