8th Grade 1st Semester FALL FINAL STUDY GUIDE

VERSION C MOD

Formulas: $V_{cylinder}=\pi r^2 h$ $V_{sphere}=\frac{4}{3}\pi r^3$ $V_{cone}=\frac{1}{3}\pi r^2 h$ Pythagorean: $a^2 + b^2 = c^2$ Use 3.14 for π

Multiple Choice

Identify the choice that best completes the statement or answers the question.

____ 1. Write $(b)(b)(b)(b)(b)$ in exponential form.

a. 5^b b. b^5 c. b^{-5}

____ 2. Write the number 230,000 in scientific notation.

a. 0.230×10^6 b. 2.30×10^5 c. 2.03×10^5

____ 3. Evaluate $(6)^{-2}$.

a. –36 b. $\frac{1}{36}$ c. $-\frac{1}{36}$

____ 4. Solve $x^3 = 125$

a. x = 5
b. x = 4
c. x = 3
.

____ 5. Combine like terms. $8x + 5z – 4x + 3z + 6$.

a. $4x + 8z$
b. $–32x + 15z + 6$
c. $4x + 8z + 6$

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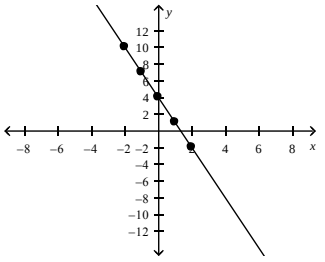
____ 6. Evaluate $(-2)^2$.

a. 4 b. 22 c. –4

____ 7. Make a table and a graph of $y = 4x - 3$.

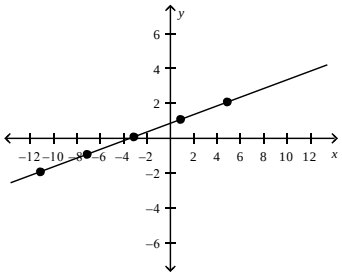
a.

x	$4x-3$	y
−2	$4(-2)-3$	10
−1	$4(-1)-3$	7
0	$4(0)-3$	4
1	$4(1)-3$	1
2	$4(2)-3$	−2



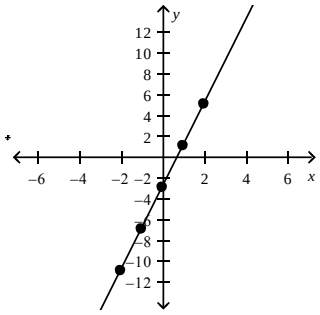
b.

x	$4x-3$	y
−2	$4(-2)-3$	−11
−1	$4(-1)-3$	−7
0	$4(0)-3$	−3
1	$4(1)-3$	1
2	$4(2)-3$	5



c.

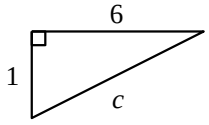
x	$4x-3$	y
−2	$4(-2)-3$	−11
−1	$4(-1)-3$	−7
0	$4(0)-3$	−3
1	$4(1)-3$	1
2	$4(2)-3$	5



____ 8. Classify the number $\frac{\sqrt{16}}{8}$ as rational, irrational, or not a real number.

a. irrational b. not a real number c. rational

____ 9. Find the length of the hypotenuse. Round your answer to the nearest tenth.



a. 6.1 units c. 7 units

b. 37 units

____ 10. A cylindrical container of potatoes has a diameter of 10 cm and a height of 9 cm. Find the volume of the container of potatoes. Give your answer in terms of π.

a. $225\pi\ \text{cm}^3$ c. $706.5\pi\ \text{cm}^3$

b. $544.5\pi\ \text{cm}^3$

____ 11. Solve. $8a - 10 = 6a$

a. $a = -0.3$ c. $a = 2$

b. $a = 5$

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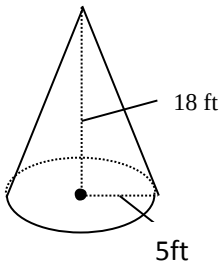
____ 12. Write the number 9.91×10^{-6} in standard notation.

a. 0.0000991 b. 9,910,000 c. 0.00000991

____ 13. Find the exact volume of the figure. Leave π in your answer. If necessary, round your answer to the nearest tenth.

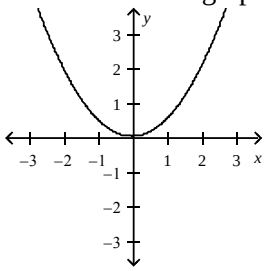


a. 150π ft^3
b. 471π ft^3
c. 150 ft^3

____ 14. Solve $\sqrt[3]{27}$

a. 2
b. 4
c. 3

____ 15. Determine if the graph represents a function.



a. The relationship is not a function.

b. The relationship is a function.

____ 16. Solve $9n + 4 = 40$.

a. $n = 4$
b. $n = 27$
c. $n = \frac{4}{9}$

____ 17. The square root $\sqrt{103}$ is between two integers. Name the integers.

a. 102, 104 b. 15, 16 c. 10, 11

____ 18. Simplify $6w^0r^{-5}$.

a. $6r^5$ b. $\frac{6}{r^5}$ c. $\frac{6w}{r^5}$

____ 19. Evaluate the expression $-4\sqrt{-14+50}$. If necessary, round your answer to the nearest tenth.

a. 50 b. –24 c. 32

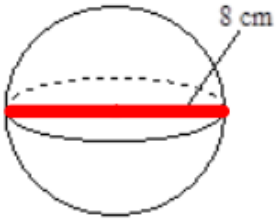
____ 20. A square room has a tiled floor with 81 square tiles. How many tiles are along an edge of the room?

a. 9 tiles b. 11 tiles c. 40 tiles

____ 21. Multiply. Write the product as one power. $12^5 \cdot 12^2$

a. 12^{10} b. Cannot combine c. 12^7

____ 22. Find the volume of the sphere in terms of π. Leave π in your answer.



a. 64π cm^3
b. 85.3π cm^3
c. 682.67π cm^3

____ 23. Find the height of a right cone with radius 6 in. and slant 10 in.

a. h = 8in
b. h = 4in
c. *h* = 16in

____ 24. Determine if the relationship represents a function.

x	*y*
0	–5
1	–1
2	3
3	6

a. The relationship is a function. b. The relationship is not a function

____ 25. Write a rule for the function represented by the table.

x	*y*
0	9
1	28
2	47
3	66

a. *y = 9 + 19x*
b. *y = 18 + 10x*
c. *y = 19 + 9x*

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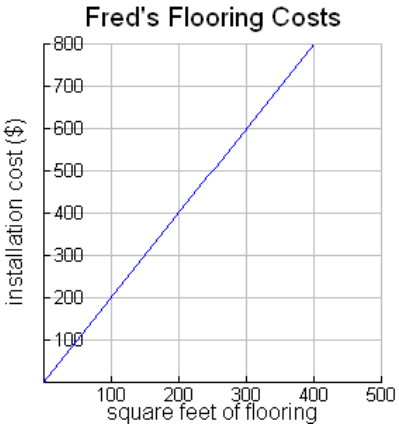
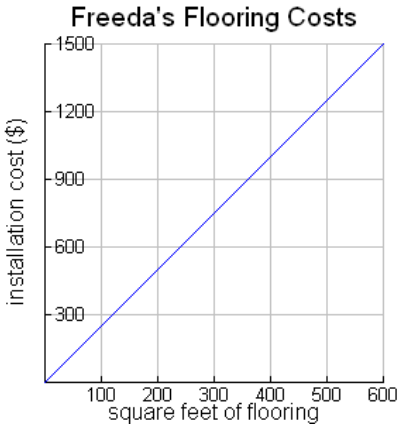
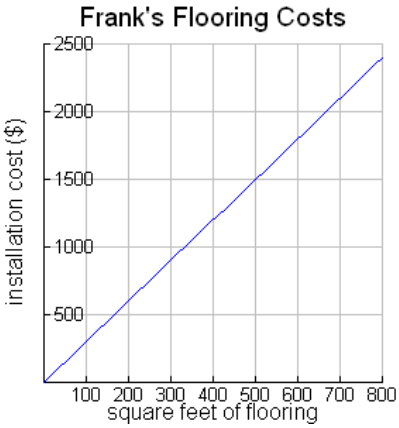
Fred and Wilma want to remodel their house. They will need someone to install carpets, tile, and other types of flooring. Here are three different pricing options they've found.







26.

a) Which graph appears to be the steepest? Which graph has the highest dollar amount possible?

b) Estimate how much Fred's would charge to install 400 square feet of flooring. What is the unit rate for flooring installation at Fred's?

c) Estimate how much Freeda's would charge to install 600 square feet of flooring. What is the unit rate for flooring installation at Freeda's?

d) Estimate how much Frank's would charge to install 500 square feet of flooring. What is the unit rate for flooring installation at Frank's?

e) Fred and Wilma want to keep their costs to a minimum. Explain which company of the three options shown would work best for them to keep their flooring installation costs to a minimum.