Oregon Focus on Math
OAKS Hot Topics
Test Preparation Workbook
2010-2014

7th Grade

To be used as a supplement for the Oregon Focus on Math Middle School Curriculum for the 2010-2014 school years when the 2007 Math Core Standards are assessed on the OAKS Assessment.

7th Grade

7th Grade OAKS Test Prep
Pre-Test

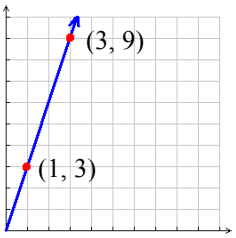
Name_____ Period_____ Date_____

1. Annual snowfall in a town was 16 inches more than normal. What integer(s) represents this situation?

A. −16
B. 0
C. 16
D. 16 and −16

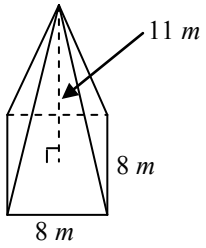
2. If the graph below models direct variation, what is its rate?

A. 1
B. 3
C. 6
D. The graph does not model direct variation.



3. How many cubic meters can the pyramid hold?

A. 88 m^3
B. $234.\overline{6}$ m^3
C. 352 m^3
D. 704 m^3

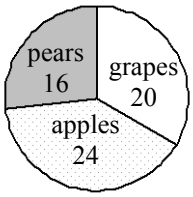


4. CJ had $241 in his bank account. He wrote a check for $32.50. How much does he have left in his bank account now?

A. $208.50
B. $209.50
C. $211.50
D. $273.50

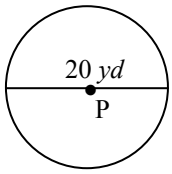
5. AJ asked 60 students which fruit they liked best. He put his results in a pie chart. What is P(pear)?

A. $\frac{6}{25}$
B. $\frac{4}{15}$
C. $\frac{1}{3}$
D. $\frac{2}{5}$



6. What is the area of ⊙P? Use 3.14 for π.

A. 31.4 yd^2
B. 163.28 yd^2
C. 314 yd^2
D. 1256 yd^2



7. Ryan is thinking of a number. Six less than four times the number is fourteen. What is the number?

A. 4
B. 5
C. 14
D. 24

8. Last year, 120 students were sick at school. This year, 40% fewer students were sick. How many students were sick this year?

A. 48 students
B. 80 students
C. 84 students
D. 118 students

9. A can of soup is 13 *cm* tall. It has a diameter that is 8 *cm* long. What is the area of the paper label on the can? Use 3.14 for π.

A. 163.28 cm^2
B. 326.56 cm^2
C. 427.04 cm^2
D. 653.12 cm^2

10. What is the value of the expression below?

$$-5(4)$$

A. 20 B. 9
C. −9 D. −20

11. A blueprint of a new home has a scale 3 inches : 5 feet. A wall in the bonus room has a length of 6 inches on the blueprint. How long is the actual bonus room wall?

A. 8 feet
B. 10 feet
C. 15 feet
D. 36 feet

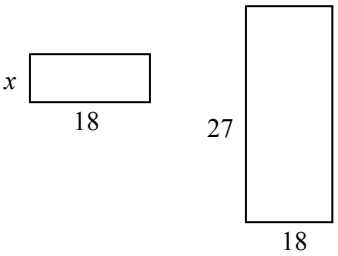
12. A gift box is 12 inches long and 8 inches wide. It is 5 inches tall. What is the volume of the box?

A. 960 in^3
B. 480 in^3
C. 392 in^3
D. 25 in^3

13. Johnny liked to measure the snowpack at his house. On Tuesday, the snowpack was $5\frac{1}{2}$ inches deep. On Wednesday, $1\frac{1}{2}$ inches had melted. How much snowpack was left?

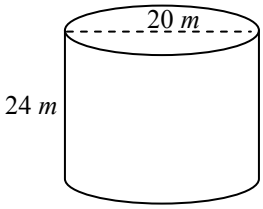
A. 6 inches
B. $4\frac{1}{2}$ inches
C. 3 inches
D. –6 inches

14. What is the value of *x* in the similar rectangles below?



A. 6
B. 9
C. 12
D. 27

15. What is the surface area of the cylinder shown below? Use 3.14 for π.



A. 200.96 m^2
B. 1507.2 m^2
C. 1821.2 m^2
D. 2135.2 m^2

16. What is the value of *x* in the equation below?

$$3(x-5)+10=-5$$

A. $x=-5$
B. $x=-4.5$
C. $x=-3$
D. $x=0$

17. Carlos walked 380 feet per minute. What was his speed in feet per hour?

A. $6.\overline{3}$ feet per hour
B. $126.\overline{6}$ feet per hour
C. 4,560 feet per hour
D. 22,800 feet per hour

18. A circular track is 628 meters. What is the radius of the track? Use 3.14 for π.

A. 100 meters
B. 200 meters
C. 985.96 meters
D. 1971.92 meters

7th Grade OAKS Test Prep
Pre-Test Analysis Sheet

Name_____ Period_____ Date_____

Analyze how you performed in each of the three strands on this math test.

Strand 7.1
Topic: Rational Numbers & Equations
35% of the OAKS Test

Circle the question numbers you got CORRECT.

1 4 7 10 13 16

Total Correct: ____/6

GOAL = minimum of 4/6

Strand 7.2
Topic: Proportionality
35% of the OAKS Test

Circle the question numbers you got CORRECT.

2 5 8 11 14 17

Total Correct: ____/6

GOAL = minimum of 4/6

Strand 7.3
Topic: Surface Area & Volume
30% of the OAKS Test

Circle the question numbers you got CORRECT.

3 6 9 12 15 18

Total Correct: ____/6

GOAL = minimum of 4/6

Answer the questions on the next page using your strand analysis…

1. My best strand is: _____

I think this is because…

2. My weakest strand is: _____

I think this is because…

3. My plan to increase my score includes doing the following…

MULTIPLE CHOICE TEST TAKING STRATEGIES

#1: JUST DO IT

- I know how to do the problem.
- I can solve the problem to find the answer listed.

#2: WORK BACKWARDS

- I can use the choices given and work backwards.

#3: EDUCATED GUESS

(A) (C)
~~(B)~~ (D)

- I am not sure how to do the problem.
- I can eliminate at least one choice that is not correct before I guess.

#4: PURE GUESS

- I have no idea how to do the problem.
- I have to guess.

7.1 NOTES ORGANIZER

INTEGERS	FRACTION OPERATIONS
DECIMAL OPERATIONS	**SOLVING EQUATIONS**

7.1 PRACTICE

For each problem, list the strategy you used. Show all work in the space provided. If you used an educated guess, explain how you chose your answer.

STRATEGIES REVISITED

Strategy #1	**Just do it**
Strategy #2	**Work backwards**
Strategy #3	**Educated guess**
Strategy #4	**Pure guess**

1. Is 5 the solution of the following equation? $3x - 17 = -2$ A. Yes B. No C. Sometimes D. Not enough information	Strategy: ____ Work/Explanation:
2. Carol was trying to estimate how much to leave for a tip. Her meal cost \$9.29, dessert was \$4.89 and her drink was \$1.79. About how much was Carol's meal? A. \$15 B. \$16 C. \$17 D. \$18	Strategy: ____ Work/Explanation:
3. What is the value of the expression below? $-21-(-22)$ A. 43 B. 1 C. −1 D. −43	Strategy: ____ Work/Explanation:
4. Paul liked to go bowling. About $\frac{1}{4}$ of his throws were strikes. If he rolled 39 balls, about how many were strikes? A. 4 B. 8 C. 10 D. 20	Strategy: ____ Work/Explanation:

5. What is the value of k in the equation below? $5k + 7 = k + 11$ A. $k = -2$ B. $k = -\frac{2}{3}$ C. $k = 1$ D. $k = 3$	Strategy: ____ Work/Explanation:
6. Suzie had a pitcher of iced tea. Each time she poured a glass it would go down by 6 ounces. If she poured 4 glasses of iced tea, what integer represents the change in the level of liquid in the pitcher? A. −24 ounces B. −10 ounces C. 24 ounces D. 46 ounces	Strategy: ____ Work/Explanation:
7. Five friends went downtown to a restaurant. Each friend bought a bus ticket for $4 and ordered the same meal. The total cost of the evening for all five was $60. If x represents the cost of an individual meal, which equation represents this situation? A. $5(x + 4) = 60$ B. $4(x + 5) = 60$ C. $60(x + 5) = 3$ D. $60 + 5 + 4 = x$	Strategy: ____ Work/Explanation:
8. What is the value of the expression below? $-28 \div (-4)$ A. −32 B. −7 C. 7 D. 32	Strategy: ____ Work/Explanation:
9. Talia wrote four checks for $14.25 each. What integer represents the change in Talia's bank account after writing the checks? A. –$57.00 B. –$56.25 C. –$14.25 D. $18.25	Strategy: ____ Work/Explanation:

10. What is the solution of the equation below? $\frac{p}{3} - 5 = 2$ A. $p = -9$ B. $p = 1$ C. $p = \frac{7}{3}$ D. $p = 21$	Strategy: ____ Work/Explanation:
11. What is the value of the expression below? $-12.24 \div 5.1$ A. –3.1 B. –2.4 C. 2.4 D. 3.1	Strategy: ____ Work/Explanation:
12. What is the value of the expression below? $9 + 2(-11 + 5)$ A. −3 B. 3 C. 21 D. 41	Strategy: ____ Work/Explanation:
13. Delaney jumped from a diving board 9.6 feet off the ground into a pool. She touched the bottom of the pool which was 7.9 feet deep. What is the difference between Delaney's highest and lowest points? A. –2.3 feet B. 1.7 feet C. 2.3 feet D. 17.5 feet	Strategy: ____ Work/Explanation:
14. John's CD club charges a $22 annual fee and then $1 per CD purchased. Nancy's CD club charges a $6 annual fee and then $3 per CD purchased. After purchasing how many CDs will John and Nancy pay the same amount? A. 2 CDs B. 5 CDs C. 8 CDs D. 16 CDs	Strategy: ____ Work/Explanation:
15. Which of the following statements is true? A. $(-2)^3 > -2^3$ B. $(-2)^3 < -2^3$ C. $(-2)^3 = -2^3$ D. $(-2)^3 \neq -2^3$	Strategy: ____ Work/Explanation:

7.2 NOTES ORGANIZER

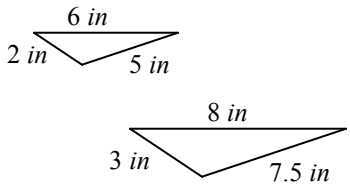
PROPORTIONS	PERCENTS
PROBABILITY	**DIRECT VARIATION**

7.2 PRACTICE

For each problem, list the strategy you used. Show all work in the space provided. If you used an educated guess, explain how you chose your answer.

STRATEGIES REVISITED

Strategy #1	**Just do it**
Strategy #2	**Work backwards**
Strategy #3	**Educated guess**
Strategy #4	**Pure guess**

1. Kara drove 248 miles in 4 hours. What was her unit rate in miles per hour? A. 62 miles per hour B. 65 miles per hour C. 68 miles per hour D. 70 miles per hour	Strategy: ____ Work/Explanation:
2. What is the scale factor for the similar figures? A. $\frac{2}{1}$ B. $\frac{3}{4}$ C. $\frac{2}{3}$ D. $\frac{3}{5}$  	Strategy: ____ Work/Explanation:
3. Jim polled 40 seventh graders. Thirty-two students said they would vote for Ali in the upcoming election. There are 250 students who will vote in the election. How many votes do you predict Ali will get? A. 16 votes B. 80 votes C. 150 votes D. 200 votes	Strategy: ____ Work/Explanation:
4. David bought four boxes of cereal for $11.20. How much would 10 boxes of cereal cost? A. $21.20 B. $22.40 C. $28.00 D. $33.60	Strategy: ____ Work/Explanation:

5. Jackson attempted 25 free throws and made 20 of them. What is the experimental probability Jackson will make a free throw?

A. $\frac{3}{5}$
B. $\frac{2}{3}$
C. $\frac{3}{4}$
D. $\frac{4}{5}$

Strategy: ____
Work/Explanation:

6. Fiero ate at a restaurant. His bill was $15.00. He left a 15% tip. How much was the tip?

A. $1.50
B. $2.25
C. $3.00
D. $5.00

Strategy: ____
Work/Explanation:

7. The table below models direct variation. What is its rate?

x	0	1	2	3	4
y	0	4	8	12	16

A. 1
B. 2
C. 3
D. 4

Strategy: ____
Work/Explanation:

8. An item had an original price of $8.00. It had a percent markup of 45%. What was the value of the markup?

A. $3.60
B. $4.40
C. $11.60
D. $12.40

Strategy: ____
Work/Explanation:

9. Kevin ran at a rate of 7 miles per hour. Which equation shows the number of miles he ran, y, in x hours?

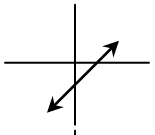
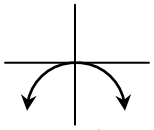
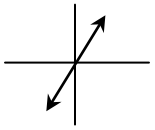
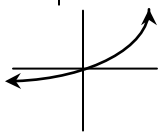
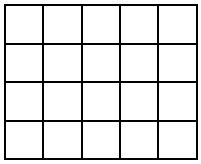
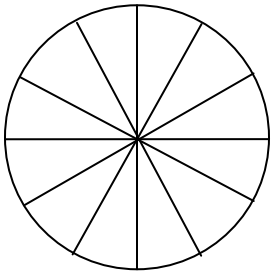
A. $y = 7x$
B. $y = 7^x$
C. $y = 7x^2$
D. $y = \frac{x}{7}$

Strategy: ____
Work/Explanation:

10. Marne walked 14 miles in 4 hours. How far would she walk in 6 hours at this rate?

A. 14 miles
B. 18 miles
C. 21 miles
D. 22 miles

Strategy: ____
Work/Explanation:

11. Which graph shows direct variation? A.  C.  B.  D. 	Strategy: ____ Work/Explanation:
12. A six-sided number cube was rolled 24 times. How many times would you expect to roll a 2? A. 2 times B. 6 times C. 8 times D. 12 times	Strategy: ____ Work/Explanation:
13. A tree grows 3 feet per year. How fast does it grown in inches per year? A. 1 inch per year B. 9 inches per year C. 30 inches per year D. 36 inches per year	Strategy: ____ Work/Explanation:
14. How many of the squares would need to be shaded to represent 70%? A. 18 B. 15 C. 14 D. 7 	Strategy: ____ Work/Explanation:
15. How many sectors of the spinner would need to be colored blue to make P(green) = $\frac{1}{3}$ true? A. 4 B. 6 C. 8 D. 9 	Strategy: ____ Work/Explanation:

7.3 NOTES ORGANIZER

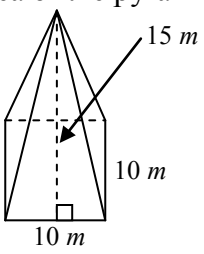
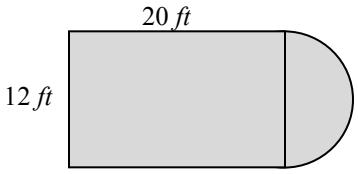
POLYGONS	CIRCLES
SURFACE AREA	**VOLUME**

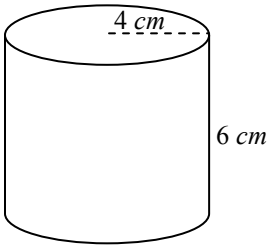
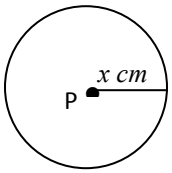
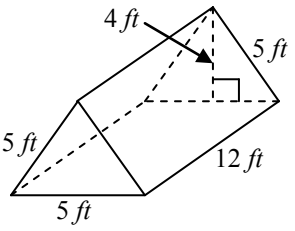
7.3 PRACTICE

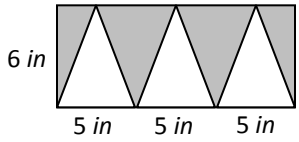
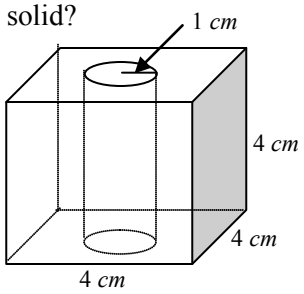
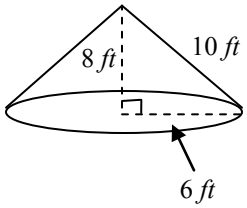
For each problem, list the strategy you used. Show all work in the space provided. If you used an educated guess, explain how you chose your answer.

STRATEGIES REVISITED

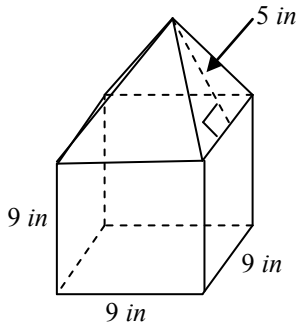
Strategy #1	**Just do it**
Strategy #2	**Work backwards**
Strategy #3	**Educated guess**
Strategy #4	**Pure guess**

1. Janet is in a race at summer camp. She must run around a circular lake. She knows the diameter of the lake is 3.5 miles. How far will Janet need to run? Use 3.14 for π. A. 3.5 miles B. 9.61625 miles C. 10.99 miles D. 38.465 miles	Strategy: ____ Work/Explanation:
2. What is the surface area of the pyramid shown below?  A. 700 m^2 B. 600 m^2 C. 500 m^2 D. 400 m^2	Strategy: ____ Work/Explanation:
3. What is the volume of a cube with sides that are 5 inches long? A. 10 in^3 B. 15 in^3 C. 75 in^3 D. 125 in^3	Strategy: ____ Work/Explanation:
4. How many square feet is the figure below? Use 3.14 for π.  A. 466.08 B. 296.52 C. 277.68 D. 240	Strategy: ____ Work/Explanation:

5. What is the surface area of the cylinder? Use 3.14 for π.  A. 213.52 cm^2 B. 276.32 cm^2 C. 326.56 cm^2 D. 452.16 cm^2	Strategy: ____ Work/Explanation:
6. The volume of a prism is 84 in^3. What is the volume of a pyramid with a congruent base and the same height as the prism? A. 252 in^3 B. 168 in^3 C. 42 in^3 D. 28 in^3	Strategy: ____ Work/Explanation:
7. What is length of the radius in ⊙P? Circumference ≈ 50.24 *cm*  A. 16 *cm* B. 8 *cm* C. 4 *cm* D. 3.14 *cm*	Strategy: ____ Work/Explanation:
8. Julie made a shape out of 26 blocks. Each block was 5 *cm* wide, 8 *cm* long and 9 *cm* tall. What was the volume of Julie's shape? A. 572 cm^2 B. 3856 cm^2 C. 7020 cm^2 D. 8164 cm^2	Strategy: ____ Work/Explanation:
9. What is the surface area of the triangular prism?  A. 200 ft^2 B. 180 ft^2 C. 160 ft^2 D. 70 ft^2	Strategy: ____ Work/Explanation:

10. A circular swimming pool has a diameter that is 20 feet. It is 4.5 feet tall. Find the amount of water that can be put in the swimming pool. Use 3.14 for π. A. 90 cubic feet B. 282.6 cubic feet C. 1413 cubic feet D. 3943.84 cubic feet	Strategy: ____ Work/Explanation:
11. What is the area of shaded region?  A. 90 in^2 B. 60 in^2 C. 45 in^2 D. 42 in^2	Strategy: ____ Work/Explanation:
12. A cylinder has been removed from a cube. What is the remaining volume of the solid? Use 3.14 for π.  A. 17.15 cm^3 B. 51.44 cm^3 C. 38.88 cm^3 D. 63 cm^3	Strategy: ____ Work/Explanation:
13. Jackson is ordering barkdust for his circular flowerbed. He wants to get the most accurate answer he can. Which value of pi should he use? A. 3 B. 3.14 C. The calculator π button D. $\frac{22}{7}$	Strategy: ____ Work/Explanation:
14. What is the volume of the cone? Use 3.14 for π.  A. 301.44 ft^3 B. 452.16 ft^3 C. 904.32 ft^3 D. 1205.76 ft^3	Strategy: ____ Work/Explanation:

15. What is the surface area of the figure below?



A. 576 in^2
B. 495 in^2
C. 414 in^2
D. 261 in^2

Strategy: ____
Work/Explanation:

7th Grade OAKS Test Prep
Post-Test

Name_____ Period_____ Date_____

1. What is the value of the expression below?

$$\frac{12+(-4)}{-1+(-3)}-2$$

A. −6
B. −4
C. 0
D. 2

2. Marissa spent $55.00 for 10 tickets to the children's puppet show. What was the price per ticket?

A. $5.00
B. $5.50
C. $11.50
D. $45.00

3. A water glass has a diameter that measures 4 inches. It is 8 inches tall. What is the surface area of the water glass? Use 3.14 for π.

A. 125.6 in^2
B. 113.04 in^2
C. 100.48 in^2
D. 25.12 in^2

4. What is the value of the expression below?

$$-\frac{3}{45}+\left(-\frac{1}{5}\right)$$

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

5. Kaiya bought 5 albums for $42.50. Amy bought 8 albums for $64.00. How much less did Amy spend per album than Kaiya?

A. $0.50
B. $1.25
C. $7.20
D. $21.50

6. The radius of a circle is 21 *mm*. What is the circumference of the circle? Use $\frac{22}{7}$ for π.

A. 132 *mm*
B. 66 *mm*
C. 42 *mm*
D. 24 *mm*

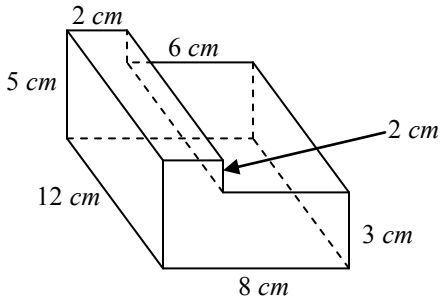
7. Two more than the product of *w* and five is forty-seven. What is the value of *w*?

A. 7
B. 9
C. 233
D. 237

8. A map has a scale of 2 inches : 11 miles. Two cities on the map are 6 inches apart. What is the actual distance between the two cities?

A. 22 miles
B. 33 miles
C. 35 miles
D. 44 miles

9. What is the volume of the composite solid?



A. 120 cm^3
B. 216 cm^3
C. 336 cm^3
D. 480 cm^3

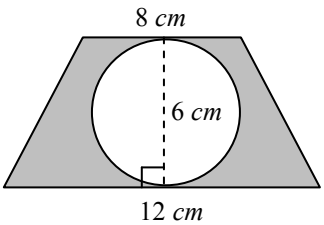
10. Which of following lists is in order from least to greatest?

A. 7, 4, −2, −6
B. 7, −6, 4, −2
C. −2, −6, 4, 7
D. −6, −2, 4, 7

11. A shirt with a price of $24 was on sale for 40% off its original price. What was the price for the shirt after the discount?

A. $9.60
B. $14.40
C. $16.00
D. $33.60

12. What is the area of the shaded region? Use 3.14 for π.



A. 31.74 cm^2
B. 45.88 cm^2
C. 91.74 cm^2
D. 376.8 cm^2

13. Savon's dog eats about $2\frac{1}{5}$ cups of dog food per day. If Savon has $17\frac{7}{8}$ cups of dog food left, about how many days can Savon feed his dog before having to buy more?

A. 11 days
B. 9 days
C. 6 days
D. 4 days

14. What is the slope of the direct variation equation $y = \frac{1}{5}x$?

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

15. The lateral area of a prism is 24 ft^2. The base of the prism has an area of 13 ft^2. What is the surface area of the prism?

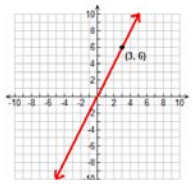
A. 13 ft^2
B. 24 ft^2
C. 37 ft^2
D. 50 ft^2

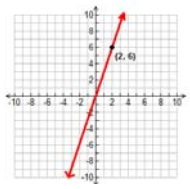
16. What is the solution of the equation below?

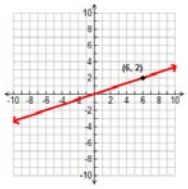
$$2(x + 7) = 44$$

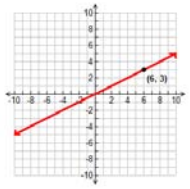
A. 15
B. 27
C. 35
D. 95

17. Which graph below is the graph of $y = \frac{1}{3}x$?

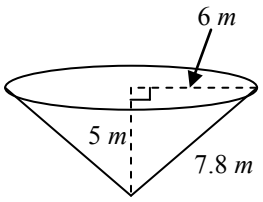
A. 

C. 

B. 

D. 

18. What is the volume of the cone shown below? Use 3.14 for π.



A. 188.4 m^3
B. 234 m^3
C. 282.6 m^3
D. 565.2 m^3

7th Grade OAKS Test Prep
Post-Test Analysis Sheet

Name_____ Period_____ Date_____

Analyze how you performed in each of the three strands on this math test.

Strand 7.1
Topic: Rational Numbers & Equations
35% of the OAKS Test

Circle the question numbers you got CORRECT.

1 4 7 10 13 16

Total Correct: ____/6

GOAL = minimum of 4/6

Strand 7.2
Topic: Proportionality
35% of the OAKS Test

Circle the question numbers you got CORRECT.

2 5 8 11 14 17

Total Correct: ____/6

GOAL = minimum of 4/6

Strand 7.3
Topic: Surface Area & Volume
30% of the OAKS Test

Circle the question numbers you got CORRECT.

3 6 9 12 15 18

Total Correct: ____/6

GOAL = minimum of 4/6