

Question 19
Benchmark A
March 2008

Mr. James described a number pattern as "start with 2 and multiply each number by 3 to get the next number."

Which number pattern is Mr. James describing?

- A. 2, 5, 8, 11
- B. 2, 5, 15, 45
- C. 2, 6, 12, 24
- D. 2, 6, 18, 54

Question 42
Benchmark A
March 2008

Rocco made this pattern.

53, 48, 43, 38

Which describes the rule for Rocco's pattern?

- A. subtract 15
- B. subtract 10
- C. subtract 5
- D. subtract 3

Question 3
Benchmark A
March 2006

Courtney starts with 12 birdhouses. She makes three new birdhouses each week.

Which pattern shows the number of birdhouses Courtney has at the end of each week?

- A. 3, 6, 9, 12
- B. 3, 15, 27, 39
- C. 12, 15, 18, 21
- D. 12, 24, 36, 48

Question 29
Benchmark A
March 2006

Casey made the pattern shown.

8, 19, 30, 41, _____, _____, _____

What are the next three numbers?

Describe the pattern.

Question 20
Benchmark A
Spring 2007

Anthony's family plants 15 trees each weekend.

Construct a table showing the total number of trees Anthony's family planted after 1, 2, 3, 4, and 5 weekends.

Describe the pattern that tells the number of trees that the family has planted.

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4th Grade Mathematics Ohio Achievement Test
Patterns, Functions and Algebra Standard

If t is the total number of trees planted and w is the number of weeks, write an expression for the total number of trees, t , that are planted after w weeks.

If the pattern continues, how many trees will have been planted after 9 weeks? _____

Show or explain how you found your answer.

Question 29
Benchmark B
May 2009

Rachel begins with an empty piggy bank. Every day she puts in \$2.50 and does not take out any money.

Which table shows the amount of money Rachel has in her piggy bank at the end of each day?

A.

| Day | Total Amount |
|-----|--------------|
| 1 | \$2.50 |
| 2 | \$2.50 |
| 3 | \$2.50 |
| 4 | \$2.50 |

B.

| Day | Total Amount |
|-----|--------------|
| 1 | \$2.50 |
| 2 | \$4.00 |
| 3 | \$6.50 |
| 4 | \$9.00 |

C.

| Day | Total Amount |
|-----|--------------|
| 1 | \$2.50 |
| 2 | \$5.00 |
| 3 | \$7.50 |
| 4 | \$10.00 |

D.

| Day | Total Amount |
|-----|--------------|
| 1 | \$2.50 |
| 2 | \$7.50 |
| 3 | \$12.50 |
| 4 | \$17.50 |

Question 5
Benchmark B
March 2008

The table shows the number of cans of paint Joe used to paint benches.

**Cans of Paint Used
to Paint Benches**

| Number of Cans | Number of Benches |
|----------------|-------------------|
| 2 | 4 |
| 4 | 8 |
| 6 | 12 |
| 8 | |

How many benches can he paint with 8 cans of paint? _____

Use pictures, words or numbers to explain how you found the number of benches.

Question 45
Benchmark B
March 2008

Jim's and Sarah's total savings at the end of each week are shown in the table.

| Week | Jim's Total Savings | Sarah's Total Savings |
|------|---------------------|-----------------------|
| 1 | \$7 | \$12 |
| 2 | \$12 | \$15 |
| 3 | \$17 | \$18 |

The pattern of savings continues.

Which statement about their savings is true?

- A. Jim will have \$1 less than Sarah at the end of week 4.
- B. Sarah will have saved more money than Jim at the end of week 4.
- C. Jim will have saved more money than Sarah at the end of week 4.
- D. Sarah and Jim will have saved the same amount at the end of week 4.

Question 7
Benchmark B
March 2006

Lyn and Kris were picking up pine cones. Every 15 minutes they counted to check the total number of pine cones they had picked up. The chart shows their results.

| Time | Lyn's Pine Cones | Kris' Pine Cones |
|-----------|------------------|------------------|
| 1:15 p.m. | 8 | 16 |
| 1:30 p.m. | 15 | 30 |
| 1:45 p.m. | 22 | 44 |
| 2:00 p.m. | 31 | 62 |

Which statement is true according to the data in the chart?

- A. Kris always picked up 8 more pine cones than Lyn.
- B. Kris and Lyn picked up the same number of pine cones every 15 minutes.
- C. Kris picked up fewer pine cones than Lyn.
- D. Kris picked up twice as many pine cones as Lyn.

Question 19
Benchmark B
March 2006

Mai Lee is buying notebooks. The first notebook costs \$0.78 and each additional notebook costs \$0.22.

Which table shows the cost of the notebooks?

A.

| Number of Notebooks | Cost |
|---------------------|--------|
| 1 | \$0.22 |
| 2 | \$0.44 |
| 3 | \$0.66 |
| 4 | \$0.88 |
| 5 | \$1.10 |

B.

| Number of Notebooks | Cost |
|---------------------|--------|
| 1 | \$0.78 |
| 2 | \$1.00 |
| 3 | \$1.22 |
| 4 | \$1.44 |
| 5 | \$1.66 |

C.

| Number of Notebooks | Cost |
|---------------------|--------|
| 1 | \$0.78 |
| 2 | \$1.56 |
| 3 | \$2.34 |
| 4 | \$3.12 |
| 5 | \$3.90 |

D.

| Number of Notebooks | Cost |
|---------------------|--------|
| 1 | \$1.00 |
| 2 | \$1.22 |
| 3 | \$1.44 |
| 4 | \$1.66 |
| 5 | \$1.88 |

Question 40
Benchmark D
March 2006

Susan saved 50 bottle caps for her school. She plans to save 2 more bottle caps each week.

Which expression tells the total number of bottle caps Susan saves after w weeks?

- A. $50 + 2w$
- B. $50 + 2 + w$
- C. $50w + 2$
- D. $50w + 2w$

Question 37
Benchmark D
Spring 2007

Scott added seven to a number, and the answer was less than 12.

Which inequality represents this situation?

- A. $12 - 7 < \boxed{?}$
- B. $\boxed{?} + 12 < 7$
- C. $\boxed{?} - 7 < 12$
- D. $\boxed{?} + 7 < 12$

Question 24
Benchmark E
March 2006

A theater has 14 rows of seats. Each row has the same number of seats. The theater has a total of 168 seats.

Which equation can be used to find the number of seats, s , in each row?

- A. $168 \times 14 = s$
- B. $14 \times s = 168$
- C. $168 - s = 14$
- D. $14 + s = 168$

Question 34
Benchmark E
March 2006

Alice has 12 markers. Ben has half as many markers as Alice. M is the number of markers that Ben has.

Which equation can Ben use to find the number of markers that he has?

- A. $12 \div 2 = M$
- B. $12 + 2 = M$
- C. $12 \times 2 = M$
- D. $12 - 2 = M$

4th Grade Mathematics Ohio Achievement Test
Patterns, Functions and Algebra Standard

Question 45
Benchmark F
Spring 2007

Matt recorded the total number of pennies he has saved at the end of each week in the table shown.

| Week | Number of Pennies |
|------|-------------------|
| 1 | 3 |
| 2 | ? |
| 3 | 12 |
| 4 | ? |
| 5 | 48 |

Each week, Matt doubles the number of pennies he has saved. He forgot to record the total number of pennies in week 2 and week 4.

Which completed table shows the correct number of pennies for weeks 2 and 4?

A.

| Week | Number of Pennies |
|------|-------------------|
| 1 | 3 |
| 2 | 6 |
| 3 | 12 |
| 4 | 18 |
| 5 | 48 |

B.

| Week | Number of Pennies |
|------|-------------------|
| 1 | 3 |
| 2 | 6 |
| 3 | 12 |
| 4 | 24 |
| 5 | 48 |

C.

| Week | Number of Pennies |
|------|-------------------|
| 1 | 3 |
| 2 | 6 |
| 3 | 12 |
| 4 | 12 |
| 5 | 48 |

D.

| Week | Number of Pennies |
|------|-------------------|
| 1 | 3 |
| 2 | 5 |
| 3 | 12 |
| 4 | 14 |
| 5 | 48 |

Question 8
Benchmark G
May 2009

The table shows the cost of pizza slices.

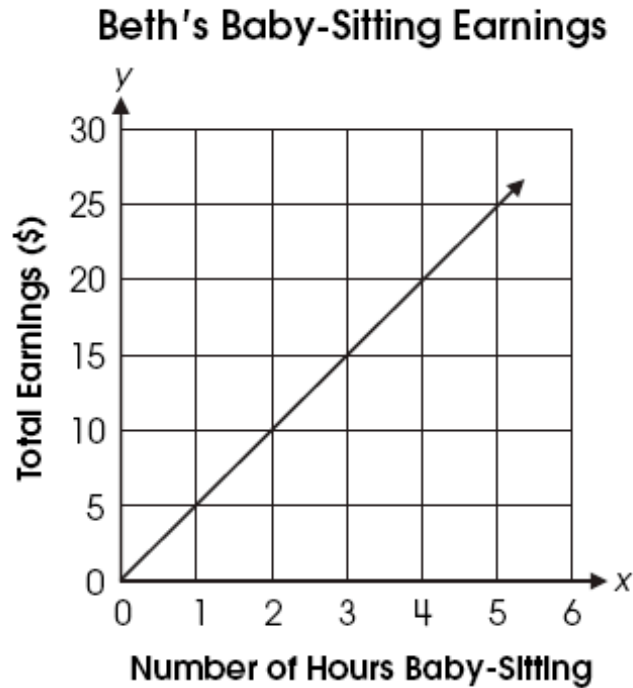
| Pizza Slices | Total Cost |
|--------------|------------|
| 1 | \$2.50 |
| 2 | \$3.75 |
| 3 | \$5.00 |
| 4 | \$6.25 |

How does the cost change as the number of pizza slices increases?

- A. The total cost decreases by \$1.25.
- B. The total cost increases by \$1.25.
- C. The cost per slice stays the same.
- D. The cost per slice doubles.

Questions 44
Benchmark G
March 2006

The graph shows Beth's earnings while baby-sitting.



Which statement describes how Beth's total earnings change as the number of hours of baby-sitting increases?

- A. For every hour, the amount she earns doubles.
- B. For every five hours, the amount she earns increases by \$1.
- C. For every five hours, the amount she earns increases by \$10.
- D. For every hour, the amount she earns increases by \$5.