**Мониторинг учебных достижений учащихся**

**Математика 11 класс**

Ф.И.О. учащего(ей)ся \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Класс\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дата проведения \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Школа\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**ВАРИАНТ I**

Инструкция по выполнению работы

На выполнение работы отводится 45 минут.

Работа состоит из двух частей, включающих в себя 12 заданий.

Часть 1 содержит задания базового и повышенного уровней сложности (№1-9) по материалу курса алгебры и геометрии с кратким ответом.

При выполнении заданий части 2 (№ 10-12) надо записать полное решение и ответ.

Советуем выполнять задания в том порядке, в котором они даны. Для экономии времени пропускайте задание, которое не удаётся выполнить сразу, и переходите к следующему. Если после выполнения всей работы у Вас останется время, Вы сможете вернуться к пропущенным заданиям.

При выполнении работы запрещается пользоваться вычислительной техникой.

Баллы, полученные Вами за выполненные задания, суммируются. Постарайтесь выполнить как можно больше заданий и набрать наибольшее количество баллов.

Справочные материалы

Таблица квадратов двузначных чисел

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|  | Единицы | | | | | | | | | |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 3 | 9 |
| 1 | 100 | 121 | 144 | 169 | 196 | 225 | 256 | 289 | 324 | 361 |
| 2 | 400 | 441 | 484 | 529 | 576 | 625 | 676 | 729 | 784 | 841 |
| 3 | 900 | 961 | 1024 | 1089 | 1156 | 1225 | 1296 | 1369 | 1444 | 1521 |
| 4 | 1600 | 1681 | 1764 | 1849 | 1936 | 2025 | 2116 | 2209 | 2304 | 2401 |
| 5 | 2500 | 2601 | 2704 | 2809 | 2916 | 3025 | 3136 | 3249 | 3364 | 3481 |
| 6 | 3600 | 3721 | 3844 | 3969 | 4096 | 4225 | 4356 | 4489 | 4624 | 4761 |
| 7 | 4900 | 5041 | 5184 | 5329 | 5476 | 5625 | 5776 | 5929 | 6084 | 6241 |
| 8 | 6400 | 6561 | 6724 | 6889 | 7056 | 7225 | 7396 | 7569 | 7744 | 7921 |
| 9 | 8100 | 8281 | 8464 | 8649 | 8836 | 9025 | 9216 | 9409 | 9604 | 9801 |

Желаем успеха!

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| ***Ответом на задания №1-9 должно быть целое число или конечная десятичная дробь. Ответ следует записать в специальном поле.*** |

1. Найдите значение выражения 

Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Найдите значение выражения 

Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Городской бюджет составляет 76 млн рублей, а расходы на одну из его статей составили 20%. Сколько миллионов рублей потрачено на эту статью бюджета?

Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

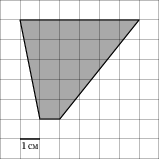
1. Найдите значение выражения 

Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. В пачке 250 листов бумаги формата А4. За неделю в офисе расходуется 700 листов. Какого наименьшего количества пачек бумаги хватит на 8 недель?

Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Найдите корень уравнения 

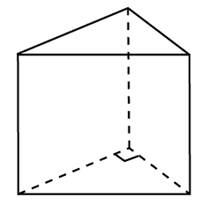
Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Найдите площадь трапеции, изображенной на клетчатой бумаге с размером клетки 1 см \times1 см (см. рис.). Ответ дайте в квадратных сантиметрах.

Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. В среднем из 700 садовых насосов 7 подтекают. Найдите вероятность того, что один случайно выбранный для контроля насос не подтекает.

Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



1. В основании прямой призмы лежит прямоугольный треугольник, один из катетов которого равен 4, а гипотенуза равна  . Найдите объём призмы, если её высота равна 3.

Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| ***При выполнении заданий № 10-12 необходимо записать полное обоснованное решение и ответ.*** |

10. Найдите наименьшее значение функции  на отрезке .

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11. а) Решите уравнение .

б) Укажите корни, принадлежащие отрезку .

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12. Решите неравенство .

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**Районный мониторинг учебных достижений учащихся**

**Математика 11 класс**

Ф.И.О. учащего(ей)ся \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**ВАРИАНТ II**

**Инструкция по выполнению работы**

На выполнение работы отводится 45 минут.

Работа состоит из двух частей, включающих в себя 12 заданий.

Часть 1 содержит задания базового и повышенного уровней сложности (№1-9) по материалу курса алгебры и геометрии с кратким ответом.

При выполнении заданий части 2 (№ 10-12) надо записать полное решение и ответ.

Советуем выполнять задания в том порядке, в котором они даны. Для экономии времени пропускайте задание, которое не удаётся выполнить сразу, и переходите к следующему. Если после выполнения всей работы у Вас останется время, Вы сможете вернуться к пропущенным заданиям.

При выполнении работы запрещается пользоваться вычислительной техникой.

Баллы, полученные Вами за выполненные задания, суммируются. Постарайтесь выполнить как можно больше заданий и набрать наибольшее количество баллов.

**Справочные материалы**

**Таблица квадратов двузначных чисел**

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|  | Единицы | | | | | | | | | |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 3 | 9 |
| 1 | 100 | 121 | 144 | 169 | 196 | 225 | 256 | 289 | 324 | 361 |
| 2 | 400 | 441 | 484 | 529 | 576 | 625 | 676 | 729 | 784 | 841 |
| 3 | 900 | 961 | 1024 | 1089 | 1156 | 1225 | 1296 | 1369 | 1444 | 1521 |
| 4 | 1600 | 1681 | 1764 | 1849 | 1936 | 2025 | 2116 | 2209 | 2304 | 2401 |
| 5 | 2500 | 2601 | 2704 | 2809 | 2916 | 3025 | 3136 | 3249 | 3364 | 3481 |
| 6 | 3600 | 3721 | 3844 | 3969 | 4096 | 4225 | 4356 | 4489 | 4624 | 4761 |
| *7* | 4900 | 5041 | 5184 | 5329 | 5476 | 5625 | 5776 | 5929 | 6084 | 6241 |
| 8 | 6400 | 6561 | 6724 | 6889 | 7056 | 7225 | 7396 | 7569 | 7744 | 7921 |
| 9 | 8100 | 8281 | 8464 | 8649 | 8836 | 9025 | 9216 | 9409 | 9604 | 9801 |

**Желаем успеха!**

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| --- |
| ***Ответом на задания №1-9 должно быть целое число или конечная десятичная дробь. Ответ следует записать в специальном поле.*** |

1. Найдите значение выражения 

Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Найдите значение выражения 

Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Городской бюджет составляет 82 млн рублей, а расходы на одну из его статей составили 15%. Сколько миллионов рублей потрачено на эту статью бюджета?

Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Найдите значение выражения 

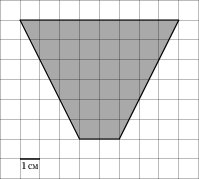
Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. В пачке 500 листов бумаги формата А4. За неделю в офисе расходуется 800 листов. Какого наименьшего количества пачек бумаги хватит на 7 недель?

Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Найдите корень уравнения

Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

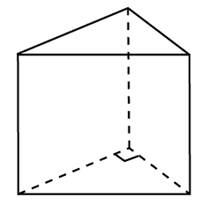


1. Найдите площадь трапеции, изображенной на клетчатой бумаге с размером клетки 1 см \times1 см (см. рис.). Ответ дайте в квадратных сантиметрах.

Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. В среднем из 300 садовых насосов 3 подтекают. Найдите вероятность того, что один случайно выбранный для контроля насос не подтекает.

Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



1. В основании прямой призмы лежит прямоугольный треугольник, один из катетов которого равен 4, а гипотенуза равна . Найдите объём призмы, если её высота равна 6.

Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| ***При выполнении заданий №10-12 необходимо записать полное обоснованное решение и ответ.*** |

10. Найдите наибольшее значение функции  на отрезке .

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11. а) Решите уравнение .

б) Укажите корни, принадлежащие отрезку .

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12. Решите неравенство .

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**Ответы и критерии оценки**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **№** | **Вариант 1** | **№** | **Вариант 2** | **Критерии оценки** |
| **Часть 1** | | **Часть 1** | | **Часть 1** |
| 1 | -4 | 1 | -8 | 1 балл |
| 2 | 36 | 2 | 16 | 1 балл |
| 3 | 15,2 | 3 | 12,3 | 1 балл |
| 4 | 7 | 4 | 2 | 1 балл |
| 5 | 23 | 5 | 12 | 1 балл |
| 6 | -25 | 6 | -28 | 1 балл |
| 7 | 17,5 | 7 | 30 | 1 балл |
| 8 | 0,99 | 8 | 0,99 | 1 балл |
| 9 | 24 | 9 | 60 | 1 балл |
| **Часть 2** | | **Часть 2** | | **Часть 2** |
| 10 | 4 | 10 | 9 | 2 балла |
| 11 | а)  б) | 11 | а)  б) | 2 балла |
| 12 |  | 12 |  | 2 балла |

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| **Содержание критерия заданий №10 и №12** | **Баллы** |
| Обоснованнополучен верный ответ | 2 |
| Допущена единичная вычислительная ошибка, возможно, приведшая к неверному ответу, но при этом имеется верная последовательность всех шагов решения | 1 |
| Решение не соответствует ни одному из критериев, приведённых выше | 0 |
| *Максимальный балл* | 2 |

|  |  |
| --- | --- |
| **Содержание критерия задания №11** | **Баллы** |
| Обоснованнополучен верный ответ в обоих пунктах | 2 |
| Обоснованнополучен верный ответ в пункте *а* или пункте *б*  ИЛИ  Получен неверный ответ из-за вычислительной ошибки, но при этом имеется верная последовательность всех шагов решения уравнения и отбора корней | 1 |
| Решение не соответствует ни одному из критериев, приведённых выше | 0 |
| *Максимальный балл* | 2 |

**Шкала перевода набранных за проверочную работу баллов в оценку:**

|  |  |  |  |
| --- | --- | --- | --- |
| От 0 до 5 баллов | От 6 до 9 баллов | От 10 до 12 баллов | От 13 до 15 баллов |
| «2» | «3» | «4» | «5» |