**Диагностическая работа**

**по МАТЕМАТИКЕ**

**8 класс за курс 7 класса**

**Демонстрационный вариант**

**2016 год**

**Инструкция по выполнению работы**

Перед выполнением работы необходимо перенести регистрационный номер с титульного листа на каждый лист бланка ответов.

На выполнение диагностической работы по математике даётся 70 минут. Работа состоит из трех основных частей, включающих 11 заданий, и одной дополнительной части, включающей 2 задания. На выполнение заданий части 1 и части 2 отводится 35 минут, в конце этого времени бланк ответов на задания части 1 и части 2 сдаётся. На выполнение заданий части 3 также отводится 35 минут. Между выполнением частей 1 и 2 предусмотрен перерыв 10 минут.

Запишите решение и ответ в отведённых для них местах на бланке ответов.

Часть 4 является дополнительной, её выполнение необязательно. Верное решение обеих заданий этой части оценивается дополнительной отметкой «5».

При выполнении работы нельзя пользоваться учебниками, рабочими тетрадями, справочниками, калькулятором.

При необходимости можно пользоваться черновиком. Записи в черновике проверяться и оцениваться не будут.

Выполнять задания можно в любом порядке, главное – правильно решить как можно больше заданий. Советуем Вам для экономии времени пропускать задание, которое не удаётся выполнить сразу, и переходить к следующему. Если после выполнения всей работы у Вас останется время, можно будет вернуться к пропущенным заданиям.

***Желаем успеха!***

**БЛАНК ОТВЕТОВ**

Регистрационный номер

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**Часть 1**

***Модуль «Геометрия»***

1. Параллельные прямые $a$ и $b$ пересечены прямой $c$, угол 1 равен $47^{°}$. Найдите угол 2.

 **1**

***а***

 ***c***

 **2**

***b***

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

1. Дано: $∠ B=∠ C=90^{°}$; $∠ ADC=50^{°}$; $∠ ADB=40^{°}$; $AB=3$ см. Найти $CD$.



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

**БЛАНК ОТВЕТОВ**

Регистрационный номер

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1. В равнобедренном треугольнике $ABC$ с основанием $AC$ к боковой стороне $AB$ проведена медиана $CD$. Периметр треугольника $DBC$ больше периметра треугольника $ADC$ на 19 см. Найдите стороны треугольника $ABC$, если его периметр равен 53 см.

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

**Часть 2**

***Модуль «Реальная математика»***

1. Флакон шампуня стоит 160 рублей. Какое наибольшее число флаконов можно купить на 1000 рублей во время распродажи, когда скидка составляет 25%?

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| **Решение** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**БЛАНК ОТВЕТОВ**

Регистрационный номер

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1. На рисунке показано изменение температуры воздуха на протяжении трех суток. По горизонтали указывается дата и время суток, по вертикали – значение температуры в градусах Цельсия. Определите по рисунку разницу между наибольшей и наименьшей температурой воздуха в эти дни. Ответ дайте в градусах Цельсия.



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

1. Семья из трех человек планирует поехать из Санкт-Петербурга в Вологду. Можно ехать поездом, а можно – на своей машине. Билет на поезд на одного человека стоит 1100 рублей. Автомобиль расходует 8 литров бензина на 100 километров пути, расстояние по шоссе равно 700 км, а цена бензина равна 36,8 рубля за литр. Сколько рублей придется заплатить за наиболее дешевую поездку на троих?

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| **Решение** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. В фирме «Родник» стоимость (в рублях) колодца из железобетонных колец рассчитывается по формуле $C=6000+4100∙n$, где $n$ – число колец, установленных при рытье колодца. Клиент заплатил 34700 рублей. Пользуясь этой формулой, определите, сколько колец ему установят.

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

**БЛАНК ОТВЕТОВ**

Регистрационный номер

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**Часть 3**

***Модуль «Алгебра»***

1. Найдите значение выражения:  и ответ запишите в виде десятичной дроби.

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| **Решение** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Задайте прямую пропорциональность формулой, если известно, что ее график проходит через точку $A(-3;6)$.

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| **Решение** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**БЛАНК ОТВЕТОВ**

Регистрационный номер

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| буква(ы) |  | число |

1. Решите уравнение: $\left(x+1\right)^{2}-\left(x-5\right)\left(x+5\right)=0$.

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| **Решение** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. По электронной почте послано три сообщения общим объемом 600 килобайт. Объем первого сообщения на 300 килобайт меньше объема третьего и в 3 раза меньше объема второго. Найдите объем второго сообщения.

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| **Решение** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**БЛАНК ОТВЕТОВ**

Регистрационный номер

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| буква(ы) |  | число |

**Часть 4 (дополнительная)**

1. Какой многочлен надо записать вместо знака , чтобы получившееся равенство было тождеством: .

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| **Решение** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Чему равна сумма коэффициентов $a$ и $b$ в уравнении прямой $ax+by-1=0$, если прямая проходит через точки $A(2;3)$ и $B(3;2)$? Ответ запишите в виде десятичной дроби.

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| **Решение** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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Ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **Как Вы считаете, на какую оценку Вы выполнили данную работу?**
2. **Ваша итоговая оценка по математике за 7 класс**
3. **Нравится ли Вам математика?**

**Ответы к заданиям**

|  |  |
| --- | --- |
| № задания | Ответ |
| 1 | $$133^{°}$$ |
| 2 | 3 |
| 3 | $AB=BC=24$*,* $AC=5$ |
| 4 | 8 |
| 5 | 16 |
| 6 | 2060,8 |
| 7 | 7 |
| 8 | -10,4 |
| 9 | $$y=-2x$$ |
| 10 | -$13$ |
| 11 | 180 |
| 12 |  |
| 13 | 0,4 |

**Система оценивания выполнения работы**

Правильное выполнение каждого из заданий 1-11 оценивается 1 баллом. За неверный ответ или отсутствие ответа выставляется 0 баллов. Максимальный балл за выполнение всей работы – 11.

*Таблица перевода баллов в отметки по пятибалльной шкале*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Отметка по пятибалльной шкале**  | **«2»** | **«3»** | **«4»** | **«5»** |
| Первичные баллы  | 0–5 | 6–7 | 8–9 | 10–11 |

Часть 4 является дополнительной, её выполнение необязательно. Верное решение обеих заданий этой части оценивается дополнительной отметкой «5».