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 Kod ucznia

|  |
| --- |
| Miejsce na metryczkę ucznia |

**Instrukcja dla ucznia:**

Zanim przystąpisz do rozwiązywania testu, wpisz czytelnie swoje imię i nazwisko, datę oraz miejsce urodzenia, nazwę szkoły oraz imię i nazwisko nauczyciela przygotowującego Cię do konkursu na oddzielnie przygotowanej karcie uczestnika. Kartę włóż do koperty. Kopertę zaklej.

Przed Tobą 18 zadań, za poprawne wykonanie wszystkich możesz uzyskać **36 punktów**. Przy każdym zadaniu masz podaną ilość punktów, które możesz uzyskać za dobre rozwiązanie.

Masz **120 minut** na rozwiązanie zadań z arkusza i przeniesienie odpowiedzi na kartę odpowiedzi.

Przestrzegaj następujących zasad:

1. Sprawdź czytelność i kompletność arkusza, który zawiera 12 stron.
2. Wszelkie usterki zgłoś nauczycielowi.
3. Rozwiązania zapisuj długopisem. Nie używaj ołówka, korektora i kalkulatora.
4. Na odwrocie tej strony znajduje się karta odpowiedzi do wszystkich zadań.
5. W zadaniach **od 1 do 10** podane są 4 odpowiedzi: A, B, C, D. Wybierz tylko jedną odpowiedź i wpisz wyraźnie, w tabeli na karcie odpowiedzi, znak **X** w kratce z odpowiednią literą.
6. Jeśli zaznaczysz błędnie odpowiedź, otocz ją kółkiem i wpisz **X** w kratkę z inną literą.
7. Odpowiedzi do zadań **od 11 do 14** wpisz z namysłem i starannie do karty odpowiedzi.
8. Rozwiązania i odpowiedzi do zadań **od 15 do 18** wpisz czytelnie w wyznaczonym miejscu.
9. Ostatnie 3 strony arkusza są przeznaczone na brudnopis. Zapisy w brudnopisie nie będą sprawdzane. Brak wpisu w tabeli na karcie odpowiedzi to brak punktów.
10. Sprawdź, czy dobrze przeniosłeś odpowiedzi do wszystkich zadań na kartę odpowiedzi.
11. Po zakończeniu pracy arkusz z zestawem zadań, kartę odpowiedzi oraz kopertę z kartą uczestnika pozostaw na swojej ławce.

POWODZENIA !!!

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Zadania | 1 - 14 | 15 | 16 | 17 | 18 | SUMA |
| Max. punktacja | **24** | **2** | **3** | **3** | **4** | **36** |
| Ilość uzysk. punktów |  |  |  |  |  |  |

 Podpisy członków komisji:

**Karta odpowiedzi:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Numer zadania** | **Liczba punktów za zadanie** | **Miejsce na odpowiedź ucznia** |  |
| **A** | **B** | **C** | **D** |  |
| **1** | **1** |  |  |  |  |  |
| **2** | **1** |  |  |  |  |  |
| **3** | **1** |  |  |  |  |  |
| **4** | **1** |  |  |  |  |  |
| **5** | **2** |  |  |  |  |  |
| **6** | **2** |  |  |  |  |  |
| **7** | **2** |  |  |  |  |  |
| **8** | **2** |  |  |  |  |  |
| **9** | **2** |  |  |  |  |  |
| **10** | **2** |  |  |  |  |  |
| **11** | **2** |  |  |  |  |
| **12** | **2** |  |  |
|  |  |
| **13** | **2** |  |  |
|  |  |
| **14** | **2** |  |  |  |
| **SUMA PUNKTÓW (wypełnia Komisja)** |  |

Podpisy sprawdzających:

|  |  |
| --- | --- |
| KOD UCZNIA |  |

W zadaniach od **1** do **10** wybierz jedną z podanych odpowiedzi a następnie w karcie odpowiedzi wpisz znak **X** w odpowiedniej kratce

**Zadanie 1. 1p**



Porównaj pola czterech figur **I, II , III, IV** (rysunek powyżej).

Wybierz zapis, w którym figury wymieniono w kolejności od figury o najmniejszym polu do tej o największym.

|  |  |  |  |
| --- | --- | --- | --- |
| **A**. I, II, III, IV | **B**. III, IV, I, II | **C**. I, III, II, IV | **D**. III, I, IV, II |

**Zadanie 2. 1p**

Odczytaj treść SMS, jaki Ania wysłała do koleżanki 27.02.2012 r. o godzinie 18.00 i oblicz, jaki jest dokładny termin wyjazdu Ani do Warszawy?

|  |  |
| --- | --- |
| **A**. 01.04.2012, godz.12.00 | **B**. 01.04.2012, godz. 18.00 |
|  |  |
| **C**. 31.03.2012, godz.12.00 | **D**. 31.03.2012, godz. 18.00 |

**Zadanie 3. 1p**

Średnia zarobków państwa Kowalskich wynosi 2804 zł. Pan Kowalski zarabia o 296 zł więcej od tej średniej. Zarobki pani Kowalskiej wynoszą:

|  |  |  |  |
| --- | --- | --- | --- |
| **A**. 3100 zł | **B**. 1698 zł | **C**. 5312 zł | **D**. 2508 zł |

**Zadanie 4. 1p**

Prostokątną działkę o długości 17 m ogrodzono zostawiając dwumetrowe wejście. Na ogrodzenie zużyto 56 m siatki. Ile arów ma ta działka?

|  |  |  |  |
| --- | --- | --- | --- |
| **A**. 1,87 | **B**. 2,04 | **C**. 18,7 | **D**. 20,4 |

**Zadanie 5. 2p**

W trapezie równoramiennym o kącie ostrym 45º dłuższa podstawa ma 3 dm, a długość krótszej podstawy jest równa  długości dłuższej podstawy. Ile centymetrów ma wysokość tego trapezu?

|  |  |  |  |
| --- | --- | --- | --- |
| **A**. 13 | **B**. 1 | **C**. 10 | **D**. 1 |

**Zadanie 6. 2p**

W świetlicy szkolnej spadło z półki pudełko z klockami. W pudełku została tylko  wszystkich klocków,  klocków znalazła się pod biurkiem,  klocków pod stolikiem,  klocków wpadła do skrzyni z maskotkami, a sześciu klocków nie udało się odnaleźć.

Ile klocków zostało w pudełku?

|  |  |  |  |
| --- | --- | --- | --- |
| **A**. 120 | **B**. 20 | **C**. 100 | **D**. 60 |

**Zadanie 7. 2p**

Matematyczne ślimaki poruszają się po osi liczbowej ze stałą prędkością. W ciągu minuty pokonują odległość 2 jednostek. Dwa ślimaki wystartowały jednocześnie w przeciwnych kierunkach, jeden zgodnie ze zwrotem osi liczbowej z punktu o współrzędnej 1, drugi zaś w kierunku przeciwnym do zwrotu osi z punktu o współrzędnej (-3). Po ilu minutach odległość między nimi wyniesie 14 jednostek?

|  |  |  |  |
| --- | --- | --- | --- |
| **A**. po 5 | **B**. po  | **C**. po  | **D**. po  |

**Zadanie 8. 2 p**

Pod koniec września w 25 osobowej klasie każdy z uczniów miał albo jedną albo dwie albo trzy oceny z matematyki. Uczniów, którzy mieli jedną ocenę było tyle samo, ilu uczniów z trzema ocenami. Ile wszystkich ocen z matematyki wystawił nauczyciel we wrześniu w tej klasie?

|  |  |  |  |
| --- | --- | --- | --- |
| **A**. 48 | **B**. 25 | **C**. 60 | **D**. 50  |

**Zadanie 9. 2p**

Objętość wody jest o 10% mniejsza od objętości lodu, z którego powstała.

Kostkę lodu w kształcie sześcianu o krawędzi długości 3 cm wrzucono do pustej szklanki. Woda powstała z tej kostki ma objętość:

|  |  |  |  |
| --- | --- | --- | --- |
| **A**. 24,3 cm3  | **B**. 2,7 cm3  | **C**. 25,3 cm3  | **D**. 16,2 cm3  |

**Zadanie 10. 2p**

W 1769 r. Nicolas Cugnot skonstruował mały pojazd parowy. Pojazd rozwijał stałą prędkość 4,5 km/h, lecz jedynie przez 12 minut, na tyle bowiem wystarczało wody i pary.

Ile pełnych okrążeń (bez zatrzymywania się) mógłby wykonać swym pojazdem Cugnot wokół paryskiej fontanny? Jedno okrążenie to droga długości 38 metrów.

|  |  |  |  |
| --- | --- | --- | --- |
| **A**. 23  | **B**. 24 | **C**. 9 | **D**. 10 |

**W ZADANIACH: 11, 12, 13 I 14 ODPOWIEDŹ WPISZ DO ODPOWIEDNIEJ KRATKI NA KARCIE ODPOWIEDZI !**

**Zadanie 11. 2 p**

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Na okręgu (rys. obok) o środku S i średnicy KM obrano punkt L taki, że kąt ostry KSL jest 2 razy mniejszy od kąta LSM. Oblicz miary kątów trójkąta KLM.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Miary kątów trójkąta KLM wynoszą: |  | , |  | , |  | . |

**Zadanie 12. 2 p**

 E

Suma pól wszystkich trójkątów z rysunku wynosi 50 cm2. Wiedząc, że , uzupełnij luki w poniższych zdaniach:

A

B

C

D

5 cm

|  |  |  |
| --- | --- | --- |
| 1. Na rysunku jest:
 |  | wszystkich trójkątów. |

|  |  |  |
| --- | --- | --- |
| 1. Odcinek x ma długość
 |  | cm. |

**Zadanie 13. 2p**

?

Wyniki działań na wszystkich balonikach są identyczne.

Różnym literom odpowiadają różne liczby jednocyfrowe oraz T = M3. Uzupełnij zdania:

|  |  |
| --- | --- |
| 1. Wynik działania z każdego balonika wynosi:
 |  |

|  |  |
| --- | --- |
| 1. Wartość wyrażenia T + M **·** (Y – K + A) wynosi:
 |  |

**Zadanie 14. 2p**

Dane są trzy figury: koło, trójkąt i kwadrat, różnej wielkości i w różnych kolorach: czerwonym, zielonym i niebieskim. Koło nie jest małe ani czerwone, trójkąt nie jest średni ani zielony, a kwadrat nie jest duży ani niebieski. Wiadomo, że mała figura jest niebieska. Uzupełnij poniższe zdanie **określając wielkość i kolor kwadratu**:

|  |  |  |  |
| --- | --- | --- | --- |
| Kwadrat jest: |  | i |  |

**Rozwiązując zadania 15, 16, 17 i 18 wpisz rozwiązanie i odpowiedź w wyznaczonym kratkami miejscu. Pamiętaj o zapisywaniu wszystkich obliczeń i odpowiedzi. Błędne obliczenia przekreślaj i zapisuj nowe.**

**Zadanie 15. 2p**

Wiedząc, że:

,

, …,

Przedstaw tą metodą ułamek  i oblicz sumę ułamków: ,  i .

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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**Odpowiedź**: Suma ułamków wynosi ………………

**Zadanie 16. 3p**

Odcinek narysowany w skali 1**:**20 jest o 38 cm krótszy od tego odcinka w naturalnej wielkości. Jaką długość ma ten odcinek w naturalnej wielkości?

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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**Odpowiedź**: …………………………………………………………………………………………….

**Zadanie 17. 3p**

Na prostokątnej działce o wymiarach jak na rysunku rośnie pszenica. Przez działkę prowadzi asfaltowa droga (zaznaczona na rys. kolorem szarym).

Ile kg ziarna pszenicy rolnik zebrał z tej działki, jeśli z 1 ha zbiera 4,5 tony ziarna?

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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**Zadanie 18. 4p**

Do basenu kąpielowego o wymiarach podanych na rysunku wlano 4500 m3 wody.

Jaka była głębokość wody w najgłębszym miejscu basenu?



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**Odpowiedź:** ……………………………………………………………………………………………

**BRUDNOPIS**

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**BRUDNOPIS**

**Pamiętaj! Wszelkie zapisy obliczeń i rozwiązań na tej stronie**

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