

# 平成31年度 高等学校入学試験問題 (HG 選抜)

## 数 学

### 【受験上の注意】

- 1、受験番号、氏名は必ず記入してください。
- 2、解答はすべて解答用紙の所定のところへ記入してください。
- 3、用紙は使いやすいように折ってもかまいませんが、破らないようにしてください。
- 4、解答用紙、問題用紙とも持ち帰らないでください。
- 5、退出の際は解答用紙を裏にして、その上に問題用紙を置いてください。

受験番号		氏 名	
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1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for transparency and accountability, particularly in financial reporting and auditing. This section also touches upon the legal requirements for record retention and the consequences of non-compliance.

### 2. Internal Controls and Risk Management

2. The second part of the document focuses on the implementation of robust internal controls and risk management frameworks. It outlines the key components of an effective internal control system, including segregation of duties, authorization procedures, and regular monitoring and evaluation. The text also discusses how these controls can be integrated with the organization's overall risk management strategy to identify, assess, and mitigate potential risks.

### 3. Financial Reporting and Compliance

3. The third part of the document addresses the requirements for accurate and timely financial reporting. It highlights the importance of adhering to applicable accounting standards and regulatory requirements. This section also discusses the role of external auditors in providing independent assurance on the financial statements and the implications of audit findings for management and the board of directors.

4. The fourth part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for transparency and accountability, particularly in financial reporting and auditing. This section also touches upon the legal requirements for record retention and the consequences of non-compliance.

5. The fifth part of the document focuses on the implementation of robust internal controls and risk management frameworks. It outlines the key components of an effective internal control system, including segregation of duties, authorization procedures, and regular monitoring and evaluation. The text also discusses how these controls can be integrated with the organization's overall risk management strategy to identify, assess, and mitigate potential risks.

6. The sixth part of the document addresses the requirements for accurate and timely financial reporting. It highlights the importance of adhering to applicable accounting standards and regulatory requirements. This section also discusses the role of external auditors in providing independent assurance on the financial statements and the implications of audit findings for management and the board of directors.

7. The seventh part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for transparency and accountability, particularly in financial reporting and auditing. This section also touches upon the legal requirements for record retention and the consequences of non-compliance.

8. The eighth part of the document focuses on the implementation of robust internal controls and risk management frameworks. It outlines the key components of an effective internal control system, including segregation of duties, authorization procedures, and regular monitoring and evaluation. The text also discusses how these controls can be integrated with the organization's overall risk management strategy to identify, assess, and mitigate potential risks.

9. The ninth part of the document addresses the requirements for accurate and timely financial reporting. It highlights the importance of adhering to applicable accounting standards and regulatory requirements. This section also discusses the role of external auditors in providing independent assurance on the financial statements and the implications of audit findings for management and the board of directors.

10. The tenth part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for transparency and accountability, particularly in financial reporting and auditing. This section also touches upon the legal requirements for record retention and the consequences of non-compliance.

【1】 次の計算をせよ。

$$(1) \frac{5}{4} - \left\{ 1 - \frac{1}{3} \div \left( 1 - \frac{3}{4} \right) \right\}$$

$$(2) \frac{5(x-2y)}{6} - \frac{2(2x-y)}{3}$$

$$(3) \sqrt{8} - \left( \frac{5}{\sqrt{3}} + \frac{4}{\sqrt{2}} \right) + \sqrt{27}$$

$$(4) (-5ab^2)^3 \div \frac{5b^2}{a^3} \div (-5a)^2$$

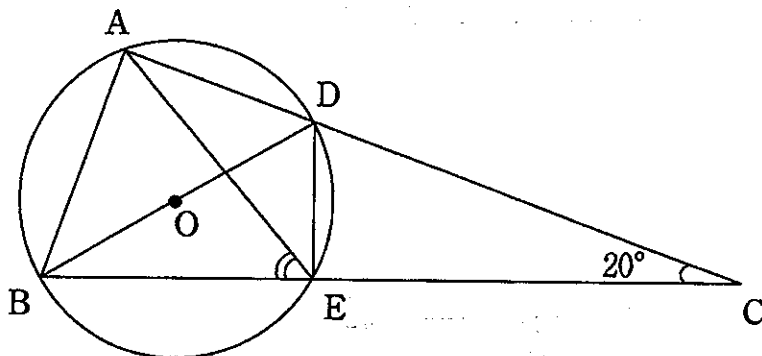
【2】 次の問いに答えよ。

$$(1) \text{連立方程式} \begin{cases} \frac{x}{5} = 0.4(y+3) + 1 \\ 4.5x - 6y = 1.5 \end{cases} \text{を解け。}$$

$$(2) (x^2 + 4x)^2 + 4(x^2 + 4x) + 3 \text{を因数分解せよ。}$$

(3) 2次方程式  $6x^2 + x - 2 = 0$  を解け。

(4) 右の図において、 $\widehat{AD} : \widehat{DE} = 4 : 3$  であるとき、 $\angle AEB$  の大きさを求めよ。



(5) 底面の円の半径が 2 cm、母線の長さが 4 cm である円錐の表面積を求めよ。

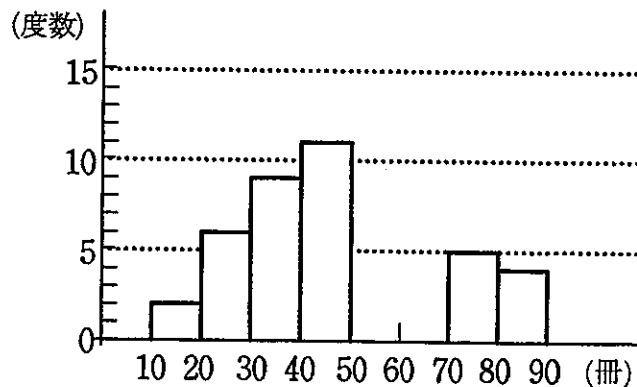
(6) 6桁の整数  $20\square 1\square 9$  がある。2個のさいころを同時に投げ、出た目の数をそれぞれ  $\square$  に入れたとき、できた整数が3の倍数である確率を求めよ。

【3】右の図は、ある中学校の3年生60人が1年間に読む本の冊数をヒストグラムに表したものである。

ただし、50～60と60～70の階級について度数は記入されていない。

このとき、次の問いに答えよ。

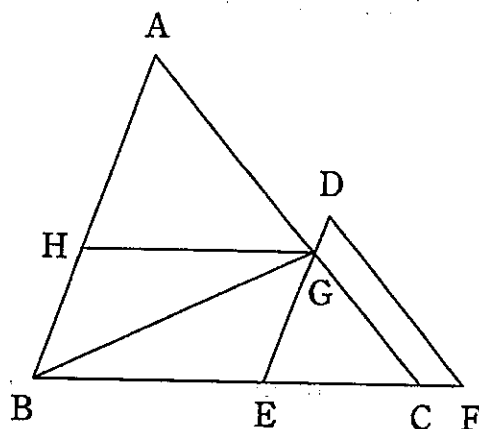
(1) 20～30と60～70の階級の度数の比は3:4である。60～70の階級の度数を求めよ。



(2) 50～60の階級の相対度数を求めよ。

【4】右の図において、 $\triangle ABC$ の $\triangle DEF$ であり、相似比は2:1である。また、 $HG \parallel BF$ であり、 $BE = 4\text{cm}$ 、 $CF = 1\text{cm}$ である。このとき、次の問いに答えよ。

(1) 線分  $CE$  の長さを求めよ。



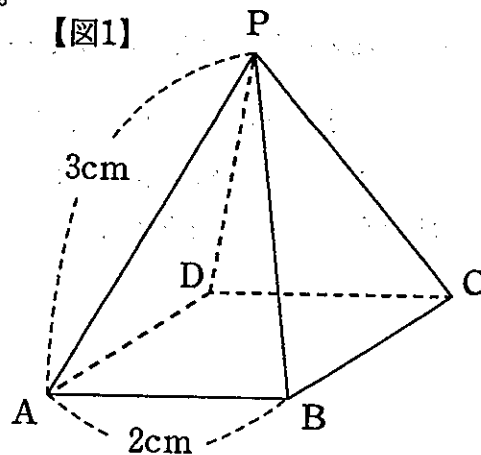
(2)  $\triangle AHG : \triangle GBE : (\text{四角形 } DGCF \text{ の面積})$  を求めよ。

ただし、答えは最も簡単な整数の比で表すこと。

【5】右の【図1】の正四角錐  $P-ABCD$  において、次の問いに答えよ。

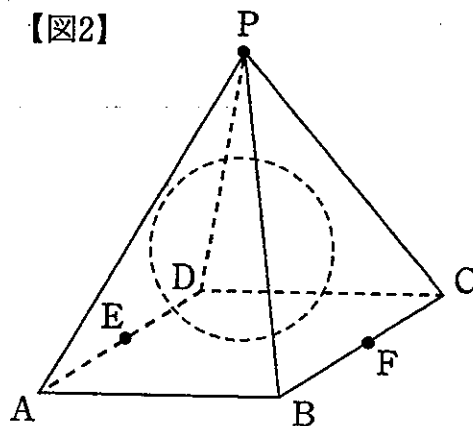
(1) 正四角錐の体積を求めよ。

【図1】

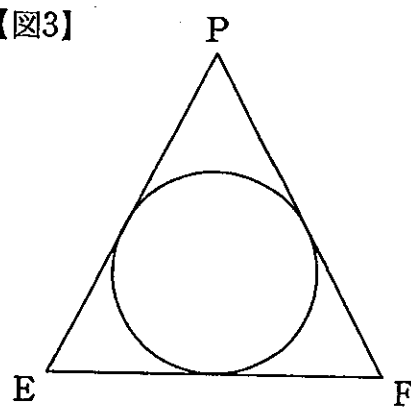


(2) 【図1】の正四角錐の中に内接する球を入れたところ【図2】のようになった。この球の半径を求めるために、辺  $AD$ 、 $BC$  の中点をそれぞれ  $E$ 、 $F$  とし、3点  $P$ 、 $E$ 、 $F$  を通る平面で切った断面を考え、【図3】を得た。内接球の半径を求めよ。

【図2】

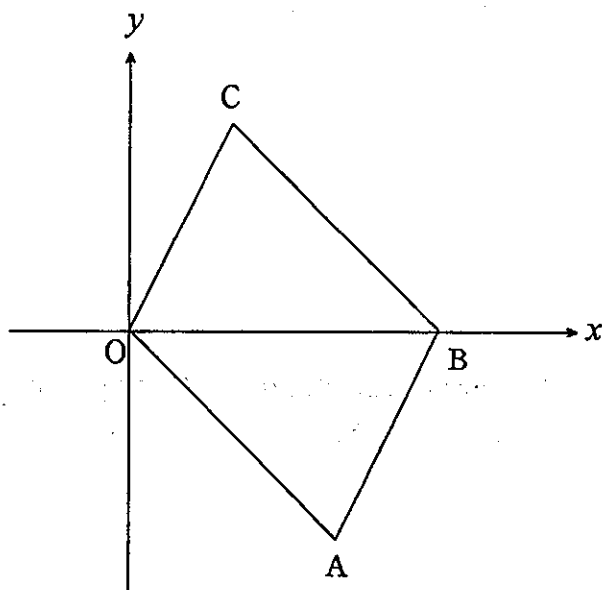


【図3】



【6】右の図の四角形 OABC は平行四辺形であり，点 C は直線  $y=2x$  上にある。点 C の  $x$  座標を 3，点 B の座標を  $(9,0)$  とするとき，次の問いに答えよ。

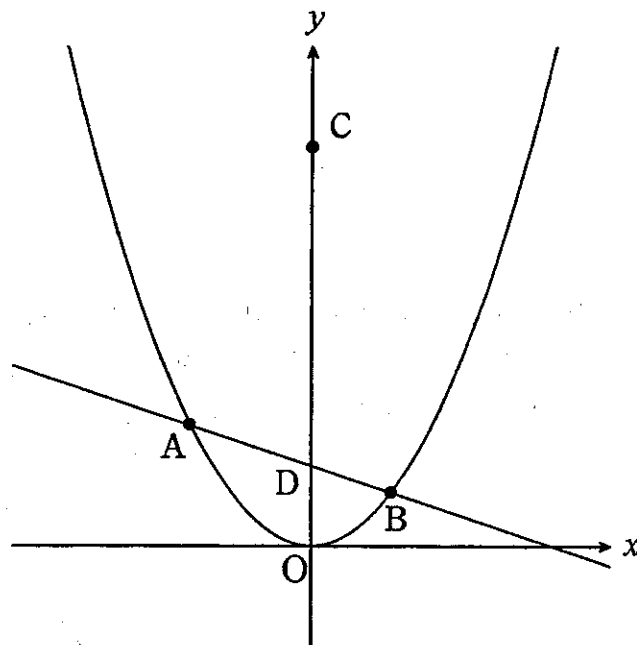
(1) 直線 OA の式を求めよ。



(2) 平行四辺形の面積を 2 等分し， $y$  軸に平行な直線の式を求めよ。

【7】右の図において，放物線  $y=\frac{1}{3}x^2$  上に 2 点 A, B をとる。点 A, B の  $x$  座標はそれぞれ  $-3$ ,  $2$  である。また， $y$  軸上に点  $C(0,8)$  をとり，直線 AB と  $y$  軸との交点を D とする。このとき，次の問いに答えよ。

(1) 直線 AB の式を求めよ。



(2)  $\triangle BCD$  を  $y$  軸のまわりに 1 回転させてできる立体の体積を求めよ。ただし，円周率は  $\pi$  とする。