NEST Mathematics Sample Paper – 6

Duration: 45 Minutes **Maximum Marks: 60**

Instructions

- This paper contains **20 Multiple Choice Questions (single correct answer)**, modelled on the Mathematics section of **NEST 2026**.
- Each correct answer carries **+3 marks**. There is a deduction of -1 **mark** for each incorrect answer; **no marks** are deducted for an unattempted question.
- Every question has exactly **four options**, of which only **one** is correct. Choose carefully.
- Personal calculators, log tables, mobile phones, and other electronic gadgets are strictly prohibited in the examination hall.
- A simple on-screen (virtual) calculator is provided in the computer-based test interface and may be used; blank sheets for rough work are supplied at the exam centre.

Q1. Consider the function $f : \mathbb{R} \to \mathbb{R}$ defined by $f(x) = 2x - 7$. Which one of the following is correct?

(A) f is one-one but not onto

(B) f is onto but not one-one

(C) f is both one-one and onto (a bijection)

(D) f is neither one-one nor onto

Q2. The exact value of $\cos 15°$ is

(A) $\dfrac{\sqrt{6}-\sqrt{2}}{4}$

(B) $\dfrac{\sqrt{6}+\sqrt{2}}{4}$

(C) $\dfrac{\sqrt{3}-1}{2\sqrt{2}}$

(D) $\dfrac{\sqrt{3}+1}{4}$

Q3. The value of $(1+i)^8$, where $i=\sqrt{-1}$, is

(A) -16

(B) $16i$

(C) 8

(D) 16

Q4. The number of diagonals of a convex polygon with 12 sides is

(A) 54

(B) 66

(C) 60

(D) 48

Q5. In the binomial expansion of $(1+x)^{10}$, the greatest binomial coefficient is

(A) 210

(B) 252

(C) 120

(D) 45

Q6. In the arithmetic progression $27, 24, 21, \ldots$, which term is the first to equal zero?

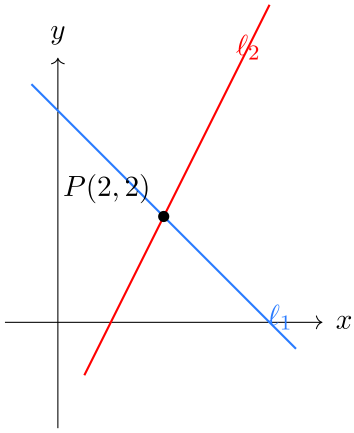
(A) 9th term

(B) 8th term

(C) 10th term

(D) 11th term

Q7. The equation of the line passing through the intersection of the lines $x + y - 4 = 0$ and $2x - y - 2 = 0$ and also through the origin is



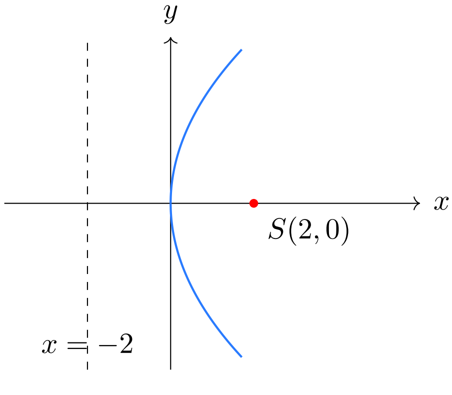
(A) $y = x$

(B) $y = 2x$

(C) $y = -x$

(D) $x + y = 0$

Q8. The equation of the parabola whose focus is $S(2, 0)$ and whose directrix is the line $x = -2$ is



(A) $y^2 = 4x$

(B) $x^2 = 8y$

(C) $y^2 = 2x$

(D) $y^2 = 8x$

Q9. The value of $\lim_{x \to 0} \dfrac{e^{3x} - 1}{x}$ is

(A) 1

(B) $\frac{1}{3}$

(C) 3

(D) e^3

Q10. The standard deviation of the first 5 natural numbers $1, 2, 3, 4, 5$ is

(A) $\sqrt{2}$

(B) 2

(C) $\sqrt{3}$

(D) $\frac{5}{2}$

Q11. The value of $\sin^{-1}\left(\sin\frac{2\pi}{3}\right)$ is

(A) $\frac{2\pi}{3}$

(B) $-\frac{\pi}{3}$

(C) $\frac{\pi}{6}$

(D) $\frac{\pi}{3}$

Q12. If $A = \begin{pmatrix} 2 & 5 \\ 1 & 3 \end{pmatrix}$, then A^{-1} is

(A) $\begin{pmatrix} 2 & -5 \\ -1 & 3 \end{pmatrix}$

(B) $\begin{pmatrix} 3 & -5 \\ -1 & 2 \end{pmatrix}$

(C) $\frac{1}{11}\begin{pmatrix} 3 & -5 \\ -1 & 2 \end{pmatrix}$

(D) $\begin{pmatrix} 3 & 5 \\ 1 & 2 \end{pmatrix}$

Q13. The values of x for which $\begin{vmatrix} x & 2 \\ 2 & x \end{vmatrix} = 0$ are

(A) $x = \pm 4$

(B) $x = 2$ only

(C) $x = \pm 2$

(D) $x = 0$

Q14. Consider $f(x) = |x|$ at the point $x = 0$. Which statement is correct?

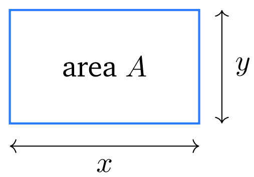
(A) f is continuous and differentiable at $x = 0$

(B) f is differentiable but not continuous at $x = 0$

(C) f is neither continuous nor differentiable at $x = 0$

(D) f is continuous at $x = 0$ but not differentiable there

Q15. A rectangle is to be cut from a wire of total length (perimeter) 40 cm. The maximum possible area of such a rectangle is



(A) 100 cm^2

(B) 80 cm^2

(C) 120 cm^2

(D) 200 cm^2

Q16. The value of the indefinite integral $\int \sin^2 x \, dx$ is (with C an arbitrary constant)

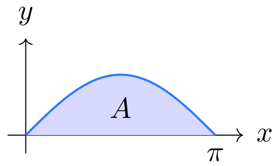
(A) $\dfrac{x}{2} + \dfrac{\sin 2x}{4} + C$

(B) $\dfrac{x}{2} - \dfrac{\sin 2x}{4} + C$

(C) $\dfrac{\sin^3 x}{3} + C$

(D) $-\cos^2 x + C$

Q17. The area bounded by the curve $y = \sin x$, the x-axis, between $x = 0$ and $x = \pi$ is



(A) 1

(B) π

(C) 2

(D) 0

Q18. The order and degree of the differential equation $\sqrt{1 + \left(\dfrac{dy}{dx}\right)^2} = \dfrac{d^2y}{dx^2}$ are, respectively,

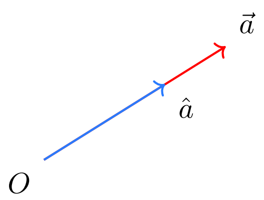
(A) 2 and 1

(B) 1 and 2

(C) 2 and $\dfrac{1}{2}$

(D) 2 and 2

Q19. A vector of magnitude 6 in the direction of $\vec{a} = 2\hat{i} + 3\hat{j} + 6\hat{k}$ is



(A) $\dfrac{12}{7}\hat{i} + \dfrac{18}{7}\hat{j} + \dfrac{36}{7}\hat{k}$

(B) $2\hat{i} + 3\hat{j} + 6\hat{k}$

(C) $\frac{2}{7}\hat{i} + \frac{3}{7}\hat{j} + \frac{6}{7}\hat{k}$

(D) $12\hat{i} + 18\hat{j} + 36\hat{k}$

Q20. One card is drawn at random from a well-shuffled standard pack of 52 playing cards. The probability that it is a king or a queen is

(A) $\frac{1}{13}$

(B) $\frac{2}{13}$

(C) $\frac{4}{13}$

(D) $\frac{1}{26}$

Detailed Solutions

Q1.

Solution

Concept — One-one and onto for a linear map: A function is one-one if $f(x_1) = f(x_2) \Rightarrow x_1 = x_2$, and onto if every real y is attained by some x.

Step 1 — One-one: If $2x_1 - 7 = 2x_2 - 7$ then $2x_1 = 2x_2$, so $x_1 = x_2$. Hence f is one-one.

Step 2 — Onto: For any $y \in \mathbb{R}$, solve $y = 2x - 7 \Rightarrow x = \dfrac{y+7}{2} \in \mathbb{R}$. Every y has a pre-image, so f is onto.

Why other options are wrong:

- (A) wrongly claims f misses some real value; the codomain $\mathbb{R}$ is fully covered.
- (B) a non-constant line cannot be many-one on $\mathbb{R}$.
- (D) contradicts both checks above.

Final Answer: f is a bijection $\Rightarrow \boxed{\text{C}}$

Answer: (C) Go Back to Q1

Q2.

Solution

Concept — Compound angle: Write $15^\circ = 45^\circ - 30^\circ$ and use $\cos(A - B) = \cos A \cos B + \sin A \sin B$.

Step 1 — Expand: $\cos 15^\circ = \cos 45^\circ \cos 30^\circ + \sin 45^\circ \sin 30^\circ$.

Step 2 — Substitute values:

$$\cos 15^\circ = \frac{1}{\sqrt{2}} \cdot \frac{\sqrt{3}}{2} + \frac{1}{\sqrt{2}} \cdot \frac{1}{2} = \frac{\sqrt{3}+1}{2\sqrt{2}} = \frac{\sqrt{6}+\sqrt{2}}{4}.$$

Why other options are wrong:

- (A) $\dfrac{\sqrt{6}-\sqrt{2}}{4} = \sin 15^\circ$, the sine not the cosine.
- (C) $\dfrac{\sqrt{3}-1}{2\sqrt{2}}$ uses a minus sign, again giving $\sin 15^\circ$.
- (D) $\dfrac{\sqrt{3}+1}{4}$ omits the $\sqrt{2}$ in the denominator.

Final Answer: $\cos 15^\circ = \dfrac{\sqrt{6}+\sqrt{2}}{4} \Rightarrow \boxed{\text{B}}$

Answer: (B) Go Back to Q2

Q3.

Solution

Concept — Powers of $(1+i)$: Use $(1+i)^2 = 2i$, then raise to a power; or apply De Moivre's theorem with modulus $\sqrt{2}$ and argument $\frac{\pi}{4}$.

Step 1 — Square first: $(1+i)^2 = 1 + 2i + i^2 = 1 + 2i - 1 = 2i$.

Step 2 — Raise to the fourth power: $(1+i)^8 = \left[(1+i)^2\right]^4 = (2i)^4 = 2^4\, i^4 = 16 \cdot 1 = 16$.

Why other options are wrong:

- (A) -16 uses $i^4 = -1$ (incorrect; $i^4 = 1$).
- (B) $16i$ would be $(1+i)^{10}$, not the eighth power.
- (C) 8 forgets that $|1+i|^8 = (\sqrt{2})^8 = 16$.

Final Answer: $(1+i)^8 = 16 \Rightarrow \boxed{\text{D}}$

Answer: (D) Go Back to Q3

Q4.

Solution

Concept — Diagonals of a polygon: A convex n-gon has $\dfrac{n(n-3)}{2}$ diagonals (join any two of n vertices, then remove the n sides).

Step 1 — Substitute $n = 12$:

$$\frac{n(n-3)}{2} = \frac{12(12-3)}{2} = \frac{12 \times 9}{2} = \frac{108}{2} = 54.$$

Step 2 — Cross-check: $\binom{12}{2} - 12 = 66 - 12 = 54$, same result.

Why other options are wrong:

- (B) $66 = \binom{12}{2}$ counts all segments, forgetting to subtract the 12 sides.
- (C) 60 subtracts only 6 instead of 12.
- (D) 48 uses $n-4$ instead of $n-3$.

Final Answer: 54 diagonals $\Rightarrow$ $\boxed{A}$

Answer: (A) Go Back to Q4

Q5.

Solution

Concept — Greatest binomial coefficient: For $(1+x)^n$ the coefficients are $\binom{n}{r}$; the largest occurs at the middle term, $r = \frac{n}{2}$ when n is even.

Step 1 — Middle term: For $n = 10$ (even), the greatest coefficient is $\binom{10}{5}$.

Step 2 — Evaluate: $\binom{10}{5} = \dfrac{10!}{5!\,5!} = 252$.

Why other options are wrong:

- (A) $210 = \binom{10}{4} = \binom{10}{6}$, a neighbour but smaller.
- (C) $120 = \binom{10}{3}$, smaller still.
- (D) $45 = \binom{10}{2}$, far from the middle.

Final Answer: greatest coefficient $= \binom{10}{5} = 252 \Rightarrow$ $\boxed{B}$

Answer: (B) Go Back to Q5

Q6.

Solution

Concept — General term of an AP: $a_n = a + (n-1)d$. Set $a_n = 0$ and solve for n.

Step 1 — Identify: $a = 27$, $d = 24 - 27 = -3$.

Step 2 — Solve $a_n = 0$: $27 + (n-1)(-3) = 0 \Rightarrow 27 = 3(n-1) \Rightarrow n-1 = 9 \Rightarrow n = 10$.

Why other options are wrong:

- (A) 9th term is $27 + 8(-3) = 3$, not zero.
- (B) 8th term is $27 + 7(-3) = 6$.
- (D) 11th term is $27 + 10(-3) = -3$ (already negative).

Final Answer: the 10th term is zero $\Rightarrow$ $\boxed{C}$

Answer: (C) Go Back to Q6

Q7.

Solution

Concept — Family of lines / intersection point: A line through the intersection of two lines passes through their common point; find that point, then the line through it and the origin.

Step 1 — Find the intersection: Solve $x + y = 4$ and $2x - y = 2$. Adding gives $3x = 6 \Rightarrow x = 2$, then $y = 2$. So $P(2, 2)$.

Step 2 — Line through P and the origin: Slope $= \dfrac{2-0}{2-0} = 1$, giving $y = x$.

Why other options are wrong:

- (B) $y = 2x$ has slope 2; it does not pass through $(2, 2)$.
- (C) $y = -x$ and (D) $x + y = 0$ have slope -1 and miss $P(2, 2)$.

Final Answer: $y = x \Rightarrow \boxed{\text{A}}$

Answer: (A) Go Back to Q7

Q8.

Solution

Concept — Parabola from focus and directrix: For focus $(a, 0)$ and directrix $x = -a$, the standard parabola is $y^2 = 4ax$.

Step 1 — Read a: Focus $(2, 0)$ and directrix $x = -2$ give $a = 2$.

Step 2 — Write equation: $y^2 = 4ax = 4(2)x = 8x$.

Why other options are wrong:

- (A) $y^2 = 4x$ uses $a = 1$ (reads $4a = 4$).
- (B) $x^2 = 8y$ is a vertical parabola, focus on the y-axis.
- (C) $y^2 = 2x$ takes $4a = 2$, i.e. $a = \frac{1}{2}$.

Final Answer: $y^2 = 8x \Rightarrow \boxed{\text{D}}$

Answer: (D) Go Back to Q8

Q9.

Solution

Concept — Standard limit: $\lim_{u \to 0} \frac{e^u - 1}{u} = 1$.

Step 1 — Adjust the argument: Write $\frac{e^{3x} - 1}{x} = 3 \cdot \frac{e^{3x} - 1}{3x}$.

Step 2 — Take the limit: As $x \to 0$, $3x \to 0$, so $\frac{e^{3x} - 1}{3x} \to 1$, leaving $3 \times 1 = 3$.

Why other options are wrong:

- (A) 1 forgets the factor 3 from the argument.
- (B) $\frac{1}{3}$ divides by 3 instead of multiplying.
- (D) e^3 substitutes $x = 1$ rather than taking the limit at 0.

Final Answer: the limit is $3 \Rightarrow \boxed{\text{C}}$

Answer: (C) Go Back to Q9

Q10.

Solution

Concept — Standard deviation of the first n natural numbers: $\sigma = \sqrt{\frac{n^2 - 1}{12}}$, derived from variance $= \frac{n^2 - 1}{12}$.

Step 1 — Substitute $n = 5$: $\sigma^2 = \frac{5^2 - 1}{12} = \frac{24}{12} = 2$.

Step 2 — Take the root: $\sigma = \sqrt{2}$.

Why other options are wrong:

- (B) 2 reports the variance, not the standard deviation.
- (C) $\sqrt{3}$ uses $\frac{n^2 - 1}{8}$ (wrong denominator).
- (D) $\frac{5}{2}$ is the mean, not a spread.

Final Answer: $\sigma = \sqrt{2} \Rightarrow \boxed{\text{A}}$

Answer: (A) Go Back to Q10

Q11.

Solution

Concept — Principal range of $\sin^{-1}$: $\sin^{-1}(\sin\theta) = \theta$ only when $\theta \in [-\frac{\pi}{2}, \frac{\pi}{2}]$. Otherwise replace θ with an angle in that range having the same sine.

Step 1 — Check the angle: $\dfrac{2\pi}{3} \notin [-\frac{\pi}{2}, \frac{\pi}{2}]$, so the answer is not $\frac{2\pi}{3}$.

Step 2 — Reduce: $\sin\dfrac{2\pi}{3} = \sin\left(\pi - \dfrac{2\pi}{3}\right) = \sin\dfrac{\pi}{3}$, and $\dfrac{\pi}{3} \in [-\frac{\pi}{2}, \frac{\pi}{2}]$. Hence the value is $\dfrac{\pi}{3}$.

Why other options are wrong:

- (A) $\frac{2\pi}{3}$ lies outside the principal range.
- (B) $-\frac{\pi}{3}$ has the wrong sign (sine here is positive).
- (C) $\frac{\pi}{6}$ has sine $\frac{1}{2} \neq \frac{\sqrt{3}}{2}$.

Final Answer: $\dfrac{\pi}{3} \Rightarrow \boxed{\text{D}}$

Answer: (D) Go Back to Q11

Q12.

Solution

Concept — Inverse of a 2×2 matrix: For $A = \begin{pmatrix} a & b \\ c & d \end{pmatrix}$, $A^{-1} = \dfrac{1}{ad - bc}\begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$.

Step 1 — Determinant: $\det A = 2(3) - 5(1) = 6 - 5 = 1$.

Step 2 — Adjoint and inverse: Since $\det A = 1$,

$$A^{-1} = \frac{1}{1}\begin{pmatrix} 3 & -5 \\ -1 & 2 \end{pmatrix} = \begin{pmatrix} 3 & -5 \\ -1 & 2 \end{pmatrix}.$$

Why other options are wrong:

- (A) keeps a and d unswapped in the adjoint.
- (C) divides by 11 (a wrong determinant).
- (D) is just A with no sign changes or swap.

Final Answer: $A^{-1} = \begin{pmatrix} 3 & -5 \\ -1 & 2 \end{pmatrix} \Rightarrow \boxed{\text{B}}$

Answer: (B) Go Back to Q12

Q13.

Solution

Concept — Determinant equation: Expand the 2×2 determinant and solve the resulting equation for x.

Step 1 — Expand: $\begin{vmatrix} x & 2 \\ 2 & x \end{vmatrix} = x \cdot x - 2 \cdot 2 = x^2 - 4.$

Step 2 — Solve: $x^2 - 4 = 0 \Rightarrow x^2 = 4 \Rightarrow x = \pm 2.$

Why other options are wrong:

- (A) ± 4 forgets to take the square root.
- (B) $x = 2$ only drops the negative root.
- (D) $x = 0$ ignores the -4 term.

Final Answer: $x = \pm 2 \Rightarrow \boxed{\text{C}}$

Answer: (C) Go Back to Q13

Q14.

Solution

Concept — Continuity vs differentiability of $|x|$: $|x|$ is continuous everywhere, but the left and right derivatives can differ at a corner.

Step 1 — Continuity: $\lim_{x \to 0} |x| = 0 = |0|$, so f is continuous at $x = 0$.

Step 2 — Differentiability: For $x > 0$, $f'(x) = 1$; for $x < 0$, $f'(x) = -1$. The left-hand derivative (-1) and right-hand derivative $(+1)$ disagree, so f is not differentiable at $x = 0$.

Why other options are wrong:

- (A) claims differentiability, but the corner breaks it.
- (B) differentiability would force continuity, so this is impossible.
- (C) $|x|$ is clearly continuous at 0.

Final Answer: continuous but not differentiable $\Rightarrow \boxed{\text{D}}$

Answer: (D) Go Back to Q14

Q15.

Solution

Concept — Maximising area at fixed perimeter: With perimeter fixed, express area in one variable and use calculus; the optimum rectangle is a square.

Step 1 — Set up: Let sides be x, y with $2(x+y) = 40 \Rightarrow y = 20 - x$. Area $A = x(20-x) = 20x - x^2$.

Step 2 — Maximise: $A'(x) = 20 - 2x = 0 \Rightarrow x = 10$, and $A''(x) = -2 < 0$ (a maximum). Then $y = 10$.

Step 3 — Maximum area: $A = 10 \times 10 = 100\text{ cm}^2$.

Why other options are wrong:

- (B) 80 comes from a non-optimal $x = 4$, $y = 16$.
- (C) 120 is impossible (exceeds the square's area).
- (D) 200 uses semi-perimeter 20 as one side.

Final Answer: maximum area $= 100\text{ cm}^2 \Rightarrow \boxed{\text{A}}$

Answer: (A) Go Back to Q15

Q16.

Solution

Concept — Power-reduction identity: $\sin^2 x = \dfrac{1-\cos 2x}{2}$, which converts the integral into elementary terms.

Step 1 — Rewrite: $\displaystyle\int \sin^2 x\,dx = \int \frac{1-\cos 2x}{2}\,dx = \frac{1}{2}\int (1-\cos 2x)\,dx.$

Step 2 — Integrate: $\displaystyle\frac{1}{2}\left(x - \frac{\sin 2x}{2}\right) + C = \frac{x}{2} - \frac{\sin 2x}{4} + C.$

Why other options are wrong:

- (A) has a $+\dfrac{\sin 2x}{4}$ (wrong sign; the identity carries a minus).
- (C) $\dfrac{\sin^3 x}{3}$ would be $\int \sin^2 x \cos x\,dx$.
- (D) $-\cos^2 x$ is unrelated to $\int \sin^2 x\,dx$.

Final Answer: $\dfrac{x}{2} - \dfrac{\sin 2x}{4} + C \Rightarrow \boxed{\text{B}}$

Answer: (B) Go Back to Q16

Q17.

Solution

Concept — Area under a curve: Since $\sin x \geq 0$ on $[0, \pi]$, the area is $\int_0^{\pi} \sin x \, dx$.

Step 1 — Antiderivative: $\int \sin x \, dx = -\cos x$.

Step 2 — Evaluate: $\left[-\cos x\right]_0^{\pi} = (-\cos \pi) - (-\cos 0) = -(-1) + 1 = 1 + 1 = 2$.

Why other options are wrong:

- (A) 1 integrates over only half the interval $[0, \frac{\pi}{2}]$.
- (B) π confuses the area with the interval length.
- (D) 0 is $\int_0^{2\pi} \sin x \, dx$, where positive and negative parts cancel.

Final Answer: area $= 2 \Rightarrow \boxed{\text{C}}$

Answer: (C) Go Back to Q17

Q18.

Solution

Concept — Order and degree: Remove radicals first; the order is the highest derivative, and the degree is its power once the equation is polynomial in derivatives.

Step 1 — Clear the radical: Squaring both sides, $1 + \left(\frac{dy}{dx}\right)^2 = \left(\frac{d^2y}{dx^2}\right)^2$.

Step 2 — Read order and degree: Highest derivative is $\frac{d^2y}{dx^2}$, so order $= 2$; it appears to the power 2, so degree $= 2$.

Why other options are wrong:

- (A) $2, 1$ ignores the squaring needed to clear the radical.
- (B) $1, 2$ misreads the order from the first-derivative term.
- (C) $2, \frac{1}{2}$ leaves the equation in radical form (degree must be a positive integer).

Final Answer: order 2, degree $2 \Rightarrow \boxed{\text{D}}$

Answer: (D) Go Back to Q18

Q19.

Solution

Concept — Vector of given magnitude along a direction: The required vector is (magnitude) $\times \hat{a}$, where $\hat{a} = \dfrac{\vec{a}}{|\vec{a}|}$.

Step 1 — Magnitude of $\vec{a}$: $|\vec{a}| = \sqrt{2^2 + 3^2 + 6^2} = \sqrt{4 + 9 + 36} = \sqrt{49} = 7$.

Step 2 — Scale to magnitude 6: $6\,\hat{a} = \dfrac{6}{7}(2\hat{i} + 3\hat{j} + 6\hat{k}) = \dfrac{12}{7}\hat{i} + \dfrac{18}{7}\hat{j} + \dfrac{36}{7}\hat{k}$.

Why other options are wrong:

- (B) $2\hat{i} + 3\hat{j} + 6\hat{k}$ is $\vec{a}$ itself, with magnitude 7, not 6.
- (C) is the unit vector $\hat{a}$ (magnitude 1).
- (D) scales by 6 without dividing by $|\vec{a}|$, giving magnitude 42.

Final Answer: $\dfrac{12}{7}\hat{i} + \dfrac{18}{7}\hat{j} + \dfrac{36}{7}\hat{k} \Rightarrow \boxed{\text{A}}$

Answer: (A) Go Back to Q19

Q20.

Solution

Concept — Classical probability with mutually exclusive events: $P(\text{king or queen}) = P(\text{king}) + P(\text{queen})$, since no card is both.

Step 1 — Count favourable cards: A pack has 4 kings and 4 queens, so 8 favourable outcomes out of 52.

Step 2 — Probability: $P = \dfrac{8}{52} = \dfrac{2}{13}$.

Why other options are wrong:

- (A) $\frac{1}{13} = \frac{4}{52}$ counts only the kings (or only the queens).
- (C) $\frac{4}{13} = \frac{16}{52}$ counts all face cards plus extras.
- (D) $\frac{1}{26} = \frac{2}{52}$ counts only two specific cards.

Final Answer: $P = \dfrac{2}{13} \Rightarrow \boxed{\text{B}}$

Answer: (B) Go Back to Q20

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	C	2	B	3	D	4	A	5	B
6	C	7	A	8	D	9	C	10	A
11	D	12	B	13	C	14	D	15	A
16	B	17	C	18	D	19	A	20	B