SAT Wednesday 02/28

Number of Contestants by Score and Day

	5 out of 5	4 out of 5	3 out of 5	2 out of 5	1 out of 5	0 out of 5	Total
Day 1	2	3	4	6	2	3	20
Day 2	3	3	5	5	4	1	20
Day 3	2	3	4	5	3	2	20
Total	7	9	13	16	9	6	60

or $\frac{2+3}{7}$

$\frac{5}{7}$

$2 \cdot 5 = 10$
$3 \cdot 4 = 12$
$4 \cdot 3 = 12$
$6 \cdot 2 = 12$
$2 \cdot 1 = 2$
$3 \cdot 0 = 0$
48

$\frac{48}{20} = 2.4$

The same 20 contestants, on each of 3 days, answered 5 questions in order to win a prize. Each contestant received 1 point for each correct answer. The number of contestants receiving a given score on each day is shown in the table above.

37

What was the mean score of the contestants on Day 1?

No contestant received the same score on two different days. If a contestant is selected at random, what is the probability that the selected contestant received a score of 5 on Day 2 or Day 3, given that the contestant received a score of 5 on one of the three days?

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23) $\frac{\tan(\frac{\pi}{2}-x)\csc x}{\csc^2 x} = \frac{\cot x \cdot \csc x}{\csc^2 x} = \frac{\frac{\cos x}{\sin^2 x}}{\frac{1}{\sin^2 x}}$ I16

$\frac{\cos x}{\sin^2 x} \cdot \frac{\sin^2 x}{1} = \frac{\cos x}{1} = \cos x$

$\frac{\cot x \csc x}{\csc^2 x} = \frac{\cot}{\csc} = \frac{\frac{\cos}{\sin}}{\frac{1}{\sin}} = \frac{\cos}{\sin} \cdot \frac{\sin}{1} = \cos$ KCF

24) $\frac{1+\tan x}{1+\cot x} = \frac{1+\tan x}{1+\frac{1}{\tan x}} = \frac{1+\tan x}{\frac{\tan x+1}{\tan x}} = (1+\tan x)\cdot\frac{\tan x}{(\tan x+1)} = \tan x$ I12 KCF

I12 $1+\tan^2 x = \sec^2 x$

$1+\tan x = \sec$ NO.

25) $(\sec^2 x+\csc^2 x)-(\tan^2 x+\cot^2 x)$

$1+\tan^2 x+1+\cot^2 x-\tan^2 x-\cot^2 x$

$1+1=2$

26) $\dfrac{\sec^2 v - \tan^2 v}{\cos^2 v + \sin^2 v} = \sec^2 v - \tan^2 v$ (I.R)

$\cos^2 v + \sin^2 v = 1$ (I.ª)

$= 1 + \tan^2 v - \tan^2 v$

$= 1$ ✓

27) $(\sin x)(\tan x + \cot x)$

$\sin x \left(\dfrac{\tan x}{1} + \dfrac{1}{\tan x}\right) = \dfrac{\tan^2 x}{\tan x} + \dfrac{1}{\tan x} = \dfrac{\tan^2 x + 1}{\tan x} = \dfrac{\sec^2 x}{\tan x}$

$\sin x \left(\dfrac{\sec x^2}{\tan x}\right) = \sin x \cdot \dfrac{\frac{1}{\cos x}}{\frac{\sin x}{\cos x}} = \dfrac{1}{\cos x} \cdot \dfrac{\cos x}{\sin x} = \dfrac{1}{\cos x} \cdot \dfrac{1}{\sin x}$

$\sin x \left(\dfrac{1}{\cos x \cdot \sin x}\right) =$

$\dfrac{\sin x}{1} \times \dfrac{1}{\cos x \cdot \sin x} = \dfrac{\sin x}{\cos x \cdot \sin x} = \dfrac{1}{\cos x} = \sec$

27) $\sin x (\tan x + \cot x)$

$\sin x \left(\dfrac{\sin x}{\cos x} + \dfrac{\cos x}{\sin x}\right)$

$\dfrac{\sin^2 x}{\cos x} + \dfrac{\sin x \cos x \cdot \cos x}{\sin x \cdot 1 \cdot \cos x} = \dfrac{\sin^2 x + \cos^2 x}{\cos x} = \dfrac{1}{\cos x} = \sec x$

28) $\sin\theta - \tan\theta \cos\theta + \dfrac{\cos(\pi/2 - \theta)}{\sin\theta}$

$\sin\theta - \dfrac{\sin}{\cos}(\cos) + \sin\theta$

$\sin\theta - \sin\theta + \sin\theta$

(Sinθ)

29) $\sin x \cos x \tan x \sec x \csc x$

$\sin x \cdot \cos x \cdot \tan x \cdot \frac{1}{\cos x} \cdot \frac{1}{\sin x} = \tan x$

30) $\frac{(\sec y - \tan y)(\sec y + \tan y)}{\sec y}$

I 12 $1 + \tan^2 = \sec^2$ ← $\sec^2 - \tan^2 = 1$

$\frac{(\sec^2 y) - (\tan^2 y)}{\frac{1}{\cos y}}$ $\frac{1}{\frac{1}{\cos y}}$ $\frac{1}{1} \cdot \cos y$

$y = \cos y$